



PACKAGING



Perfection on every line

Packaging technology for
advanced process automation

Hochwald Foods GmbH

**Nordson**

Perfection on every line

The Hochwald Group officially opened its plant in Mechernich-Obergartzem, North Rhine-Westphalia, in June of last year. It was company's largest project in the history of the cooperative, since it was founded in 1932. It's currently one of the most modern and efficient dairies in Europe.

The machinery at the site, which was built with an investment volume of around 200 million euros, is also a masterpiece: from process technology of the filling to the packaging equipment. For example, 33 innovative ProBlue® Flex melters are used at the end of the lines.

The Challenge

The new milk processing plant replaces the previous facility in neighboring Ertstadt. The spatial dimensions of the latest facility are remarkable. On an area of 21.5 hectares, 60,000 square meters of floor space are rebuilt. The production hall alone, including the final packaging and palletizing areas, covers 18,000 square meters. From here, the goods are transported to a high-bay warehouse with approx. 50,000 storage spaces.

Only long-life dairy products are produced in Mechernich, mainly coffee cream, condensed milk and milk-based mixed drinks in addition to classic UHT milk. There are 89 tanks to receive the volume of raw milk provided by around 1,200 suppliers. The maximum processing capacity is 800 million kg per year.

The fact that the number of employees is surprisingly low at 250 is due to the extraordinarily high level of automation at the site. From delivery to shipping, all processes are automated or digitally controlled at several levels. The efficiency is perhaps most visible in the implementation of the driverless transport vehicles used, which significantly optimize internal logistics.

Impressive filling and packaging technology

A detailed technical examination reveals impressive equipment which, due to the considerable order volume, can become a reference project for the companies involved. Presently, 17 lines are installed for filling, with the generously-sized production hall offering the option of expansion. Assuming full utilization, up to 1.4 billion packs of various volumes between 200 ml and one liter can be produced per year. For secondary packaging, an HTW cartoner from Meurer Verpackungssysteme GmbH is used on each of the 17 lines. The Fürstenuau-based company also supplied the peripheral technology such as the conveyor systems and storage tables. The machine's abbreviation stands for high-performance tray and wrap-around packer, which achieves an output of up to 60 cycles per minute. Various function modules enable it to form a wide range of tray variants. In Mechernich, these are mainly open-topped, shelf-ready wrap-around trays, used in the most common pack size with twelve one-liter packs.



12-packs packed in wrap-around trays on their way to the high-bay warehouse

Straw applicators from Geysseel Sondermaschinen GmbH are installed upstream of the Meurer cartoners on five lines. Four of them are from the 400 series, one line from the 500 series of the Cologne-based company. The former can process up to 14,400 packs per hour, while the larger machine can double that output. The drinking straws are typically applied to mixed milk drinks in 200- or 500-ml packs. As additional equipment, each applicator is equipped with a thermal film treatment unit and object detection for rejecting incorrectly glued drinking straws.

The solution

Numerous melters for various packaging tasks

The US adhesive technology specialist Nordson has installed no less than 33 type T07 hotmelt applicators from the new ProBlue Flex series at Hochwald in Mechernich. As the model designation indicates, they have a tank volume of seven liters. A total of 18 of the innovative melters operate on the Meurer cartoners, and five on the Geyssele applicators. The remaining ten hotmelt systems are used for so-called ReCap bonding, i.e. the application of reclosable spouts or milk caps.

While the drinking straws are attached to the pima packaging by means of a dot application, the wrap-around trays are fixed with the aid of glue beads. For this purpose, three MiniBlue II applicator heads are attached to the right and left of the blank conveyor, which apply the adhesive to the side flaps. Technomelt Supra grade 10 Plus-22 from Henkel is used for this purpose.

The ProBlue Flex melter represents the latest generation of hot melt melters from Nordson Corporation, whose European office is in Erkrath, Germany. Designed specifically for end-of-line applications, the ProBlue Flex combines all the advantages of their predecessor series with modern industry standards and innovative solutions. Designed as a modular and scalable system, this melter can be configured to adapt to the different needs of diverse industries.

The ProBlue Flex systems at Hochwald have a large, clear OLED display, and are integrated into the packer control system. The cartoners are controlled via the central production control system. Before the project started, the adhesive supply was still done by manual refilling. Since mid-March of this year, however, a central filling system has been installed and the adhesive is automatically fed from a big bag station with the aid of a pump. This means that there is now a closed system, which not only minimizes contamination of the adhesive but also the risk of burns.

In addition to conventional tank units, the ProBlue Flex series also includes tank-volume-reduced melt-on-demand versions with on-demand melting and automatic filling. In this variant, the systems are more energy-efficient due to the shortened heat-up and warm-through times. Various additional functions can also be integrated, such as adhesive flow control or a pressure regulator for precise application of very small quantities. In terms of IoT and Industry 4.0 requirements, connectivity through Nordson's new BBconn Cloud is also worth mentioning. It enables full remote control as well as advanced diagnostics and real-time monitoring of the bonding process.



Nordson and Hochwald Winning Team

Stephan Michels, production manager of the plant in Mechernich has been active within the Hochwald Group for 32 years. As an experienced practitioner, he is very satisfied with the implementation of the packaging technology.

“We have maintained a good working relationship with the companies Meurer and Nordson for a long time and wanted to build on this trusting cooperation. The planning and installation went off without any major problems and all the system components proved to be remarkably resistant to faults.

The fact that we were able to use the latest technology is, of course, an additional plus. As far as the Nordson equipment in particular is concerned, its efficiency and reliability is now clearly evident after several months of continuous operation,” says Michels.

And since a multi-year maintenance framework agreement has also been concluded, the problem-free end-of-line gluing of secondary packaging is permanently ensured.



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Nordson application and verification technology helps efficiently apply adhesives to meet both form and function for a wide variety of packaging applications: sealing, attachment, confectionary and small pack, tray making, palletizing, siftproof/tamper evident/braille applications and labeling.

Packaging applications are often judged equally by how they look and how well they perform, so application systems must apply the right amount of adhesive to be structurally sound and without messy stringing, tailing or squeeze out. Whether using hot melt or cold adhesives, Nordson is a world leader in packaging and converting application technology.



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Global

Supporting and collaborating with customers worldwide.



Business Scale

Extensive capabilities to deliver on customer promises.



Value Innovation

Consistently creating customer value with innovative technology.



Direct

Direct offices in over 30 countries with local application experts nearby to help.

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