Three Mini Blue II hotmelt applicators built up in a row.

Photos: Kimberly Wittlieb

Crate bonding with full service

Converting to new technologies can be worth it

With 10 billion kg of milk processed in 2011, Netherland-based Friesland Campina Group is one of the largest dairy cooperatives in Europe. For the company, optimisation of production facilities is a matter of course. Its continuous modernisation extends even to efficient gluing of secondary packaging.

Shelf-ready crates on their way to final packaging.

■ It is the entire configuration of hotmelt adhesive application for transport crates and clip packaging at the German Gütersloh location, that was recently converted to new filling systems and dispensing guns from Nordson Deutschland GmbH. A similar replacement had already been made at the Cologne plant, which processes mainly fresh milk, curd cheese, cream and yoghurt. The new gluing units will be used in this facility, which specialises in the production of yoghurts, desserts and related dairy products, mainly for high-output production of outer packaging.

100,000 crates per day

The adhesive application technology specialist with headquarters in Erkrath nearby Düsseldorf has been providing equipment for both production sites for many years. The current upgrade was part of a recently completed full service contract which provides advantages in several respects. The "all-round carefree package" includes not only equipment rental but also a maintenance contract and a flat rate for spare parts. This eliminates high procurement costs for systems while also reducing spare parts stocking to a minimum.

The replacement affected not only the systems on the previous twelve filling stations, but also an additional new production building that went into operation at the beginning of May this year. The new building has space for four additional processing lines.

Gasti, Ampack Ammann and Hamba plants are mostly used for filling at the Gütersloh site. About 100,000 solid and corrugated cardboard crates of various types are needed daily to hold the wide range of products. For example, cups with diameters of 68, 75, 95, 112 and 130 mm and various heights and shapes must be transported. One traditional variant is the 24-unit tray with 68-mm cups. However, an arrangement of just six cups 130 mm in diameter is also very common.

A total of 20 gluing machines are used in different lines to produce this varied assortment of crates together with clip packaging (outside packaging for two-packs). With widely different conveyor speeds, between 10 and 40 crates are glued per minute. Six glue spots are set in each cycle.

The dispensing guns that were previously used have now been replaced by modules from the Nordson MiniBlue II and SureBead series. Both machines work pneumatically and are designed for either bead gluing or point gluing, which saves material. In some cases four individual modules are now responsible for the throughput previously covered by two double-nozzle modules.

Automatic, sensor-controlled hotmelt filling system of ProBlue Fulfill series.

A superb "endurance sprinter"

The MiniBlue II was introduced to the market in the spring of 2010. It quickly earned the moniker "endurance sprinter" and won the German Packaging Award in 2010 in the category of machine technology. The most recent FachPack saw the premiere of the further improved, fully insulated version. In addition to the effect of a significantly reduced surface temperature to increase workplace safety, this version is also able to achieve energy savings at a level of about 50 per cent.

The machine is used in the dairy provider's processing lines mainly for end-of-line applications. Significant technological features of the hotmelt application include the patented frictionless bellows sealing concept, the optimised air-opening/air-closing ball-and-seat modules and the Saturn SP solenoid valve with a minimum switching time of approximately 2 ms, depending on the adhesive used. The applicator head, which is just 16 mm wide, not only ensures exact adhesive separation, even at high speeds, it also features an extraordinarily long service life of more than 100 million operating cycles.

This value also differs depending on the type of adhesive used. In all cases, however, it can be expected that the new applicators will achieve a significantly higher service life, roughly twice that of conventional hotmelt units.

The SureBead pneumatic hotmelt applicator head, which is used especially for gluing high-viscosity hotmelt at the Gütersloh dairy processing plant, works with self-cleaning needle-and-seat modules and exchangeable Saturn nozzles of type RC (Reduced Cavity). This combination ensures that no clogging or other problems occur during operation, making the applicator head a natural choice for packaging and assembly applications with aggressive hotmelts.

The applicator heads are fed through hoses from automatic, sensor-controlled ProBlue Fulfill 7 or 10 hotmelt filling systems. The typing in litres refers to the relevant tank capacities. The granulate is also supplied through a hose from a 60-kg storage container. This is therefore a closed system, which eliminates error sources such as interruptions in the supply of hotmelt, formation of threads or cracking of the hotmelt.

The optimum fill level height in the tank is continuously ensured by sensors. A constant processing temperature is also ensured and a large assortment of different hotmelts can be used over a wide temperature range. A display of operating states with an automatic switching-off function or fault display for error messages also further enhances process safety and reliability.

Good experience in practice

On the machine builder's side, Area Sales Manager Martina Hammer and Customer Service Engineer Michael Visser were largely responsible for implementing the project. On the customer's side, Thorsten Führ, Filling Manager, and Norbert Bökamp from the Maintenance Department were substantially involved in implementing the planning. "Malfunctions on the gluing machines have decreased significantly," says Thorsten Führ while Norbert Bökamp adds: "In addition to greater availability and reduced downtimes, we also give an especially positive rating to the low cleaning work required." Both emphasise that the conversion to the new technology was not so much motivated by operating speed as by the compact design of the dispensing guns. bn

Very satisfied with the recently installed hotmelt application systems : Thorsten Führ (l.), Head of Filling Sections at Friesland Campina, and Norbert Bökamp, Maintenance Department.

Advantage

Significant features for the new kind of hotmelting

- patented frictionless bellows sealing concept
- optimised air-opening / air-closing ball-and-seat modules;
- solenoid valve with a minimum switching time of approximately 2 ms;
- applicator head ensuring exact adhesive separation, even at high speeds, and also featuring an extraordinarily long service life of more than 100 million operating cycles.