

Lights-out picking at Finland's largest dairy

Valio – nowadays the largest dairy products company in Finland – was established in 1905 to help boost the export of Finnish butter. At that time no one would have believed that in the space of 100 years of operation, 200 million kg of products would be order picked by robot. Currently the Valio product portfolio includes about 750 chilled products, a third of which are picked using the Cimcorp MultiPick robot system. Besides the robots, the WCS system in particular has received a lot of praise, as it enables the monitoring of real-time operations in all the warehouses, including those where order picking is still largely carried out manually.

Finland is one of the major consumers of milk in the world. According to the statistics, annual consumption of milk is just less than 140 liters per capita – 86 percent of which is produced by Valio. When you add the hundreds of other dairy items to the different milk products, the production volumes are staggering: annually Valio delivers 750 million kilograms of products to its customers. In terms of order lines, that is about 45 million lines a year.

As far as fresh foods are concerned, accuracy and speed of delivery are naturally of top priority. Demands for efficiency in Valio's order picking and dispatch operations have been addressed in part by automating both warehousing and order picking.

About 450 million kg of products go through the main warehouses in Riihimäki and Jyväskylä.

"About half of the volumes picked in the main warehouses are picked by Cimcorp gantry robots. Automation plays a significant role in both warehousing and dispatch operations, as about 60% of all our products are picked in these warehouses," says **Heli Helminen**, warehouse operations manager at Valio. No labor is required for the volumes picked by the Cimcorp gantry robots other than to roll finished orders onto trucks.

As well as the robots, Helminen has special praise for Cimcorp's WCS (warehouse

control software), which has enabled real-time monitoring and reporting of warehouse operations.

"We also use Cimcorp's warehouse control software alongside SAP in Tampere and Oulu, where products are picked manually. The WCS provides us with the necessary transparency, and monitoring of operations can also be done between the various warehouses. In our view, this is one of Cimcorp's real selling points," says Helminen.

Apart from the direct effects of the Cimcorp WCS system, Valio has also enjoyed some indirect benefits. When the company implemented voice-directed picking at the Oulu site in 2007, one of the preconditions was setting up warehouse control software.

"There are over 100 order pickers on the payroll at our Oulu warehouse, whose work used to be based on printed lists. Now the lists have been replaced with headsets and their hands are free. Thanks to the voice-directed system many traditional work stages can be bypassed, and thereby we have increased the efficiency and accuracy of our operations."

From minimum to maximum

As well as the key benefit of cost efficiency, Helminen believes that the Cimcorp automation systems have also achieved other important results. Order picking errors have been minimized, and the effective throughput,

and picking of large volumes have been facilitated.

"The robot systems have enabled an efficient and rapid flow for high volume products. In other words we can get products very quickly from production to the stores. In the best case scenario, milk can move from the packing section to the consumer's refrigerator within six hours!" says Helminen.

And since the products move so quickly from production to stores, monitoring also has to be kept continually up to speed.

"In dairies that make fresh products, the timeliest packing possible according to actual demand is an essential factor in practical terms. These challenges have been answered by adding the pull control application to the WCS. This allows us to monitor customer orders and production volumes minute by minute."

Although the situation in relation to efficient use of time is now looking good, Helminen thinks that the demands of the supply chain will grow even more in the future. As product ranges expand and the markets grow, operators in the sector will be expected to manage their business on an even larger scale.

"We have continuous cooperation with Cimcorp, in particular regarding software development. The results have been impressive and I believe that we will continue to see more positive improvements in the future," smiles Helminen. ►



“About 450 million kg of products go through the main warehouses in Riihimäki and Jyväskylä and about half of the volumes are picked by Cimcorp gantry robots,” says Heli Helminen, warehouse operations manager at Valio.



► Buffering ensures optimal cycle

A buffer storage area using the MultiPick robotic system was installed at Valio's Jyväskylä warehouse last year. All kinds of targets were set for the buffer.

TEXT: TOTTI TOISKALLIO PHOTOS: PETRI BLOMQVIST

“We wanted to safeguard production capacity and its growth as the number of product items increases, and also to improve product throughput and, as a result, productivity,” say supervisor **Martti Tervala** and maintenance manager **Tero Ruusuvirta** of the Valio Jyväskylä warehouse.

These objectives have been achieved as far as the automated buffer is concerned. The bottlenecks between production and order picking have been reduced and cross-traffic in the order consolidation area has decreased. In addition, the fill ratio of the dollies has improved and there are more alternatives for product location.

“The automated buffer allows us to distribute the order picking of routes to several robot frames when necessary or to carry out prepicking in the buffer during peak times. This is also reflected in better delivery accuracy for our customers,” says Tervala.

Double the gripping efficiency

Order picking, particularly of slow movers and products manufactured more infrequently, has also been optimized thanks to the buffer. In the dairy industry, the expiry date plays a crucial role and special attention has to be paid to optimizing the inventory turnover of fresh products.

“The new storage area facilitates the buffering of products. Consequently, each robot frame can be utilized to full capacity, as there are always products available for picking. Buffering also frees up more space for the robots for daily order picking,” says Ruusuvirta.

The peripheral equipment supplied to the Jyväskylä buffer storage includes MultiPick Dual grippers instead of standard grippers. MultiPick Dual grippers are able to handle two different crate stacks at the same time. In practice, this doubles efficiency.

“The number of cycles is halved both in picking and deposit, and the extra capacity of



Cimcorp's scope of supply for automated distribution in Valio's dairies at Jyväskylä, Riihimäki, Tampere, and Oulu:

- systems design and simulation
- equipment design
- project management and commissioning
- MultiPick robots for buffering and full crate picking
- MultiplePick robots for mixed crate picking
- MultiPick and MultiPick Dual grippers
- conveyors and transfer cars
- Cimcorp WCS warehouse control software for all order picking operations (RIC, full crate, mixed crate and manual) and total material flow management (infeed, order consolidation)
- pull control software for optimization of stock and production volumes
- voice-controlled system for manual order picking
- customer training
- in-situ maintenance of equipment

The MultiPick Dual gripper can handle two crate stacks at a time, doubling the handling capacity.



the transfer robot can be used to handle mixed stacks with a single gripper," explains Tervala.

The new buffering system has also brought changes in the warehouse work routines. In particular, more possibilities are now available to the systems operator for storing different products. "For example, the real-time control of mass transfers made from the buffer to the order-picking robot is reflected in an improvement in overall capacity. The system enables us to deal with order picking and replenishment of the picking storage at just the right time. Likewise, it offers more alternatives for production control," comment Tervala and Ruusuvirta.

The buffering system, which has been in operation for almost a year, has proved a profitable investment. Valio was also pleased with the straightforward installation project. "Construction proceeded according to plan and the installation work did not cause any disruption to production or customer deliveries."



Over 1,500 robotic installations in 30 countries



Cimcorp has installed MultiPick order picking systems in bakery, dairy, fresh produce, beverage, meat processing and mail sorting facilities around the world

