Körber Supply Chain

Really good palletizing of baked goods

How to decouple processes by full automation

One of Germany's largest bakeries has fully automated their entire crate handling process, from the return of empty crates to truck loading of the finished goods.

Challenge

Unnoticed by consumers, large-scale bakeries supply supermarkets and discounters in the chilly early morning hours with fresh bread and other baked goods.

Hundreds of trucks swarm out at the same time and come back to the bakery with empty crates late in the morning.

When unloading, at times up to 6,000 empty crates per hour need to be transported, sorted, washed and made ready to be filled again.

The intense competition and price pressure in this sector forces companies to automate production as much as possible. In this context Körber provides a concept for a completely new system for pallet and empty crate logistics.

Solution

The Körber palletizing specialists combined the K.Handle depalletizer DPA1, the K.Handle destacker KE1 and the K.Handle layer palletizer PA11.
The system is controlled by a Siemens type S7 controller. Documentation is done via Profibus–DP.

The result is an efficient overall system for fully automatic pallet and empty crate logistics; operators are only required to intervene to deal with problems (caused, for example, by defective containers, damaged pallets or leftover rubbish).

Plastic honeycomb crates measuring 400 mm wide, 600 mm long and 160 mm high are used to transport the baked goods. Sixty of these crates fit onto a pallet– stacked in four towers of 15 crates each.
The DPA1 separates the four stacks of crates from the wooden pallet at a rate of 100 pallets per hour.

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After the stacks of crates have been depalletized the KE1 separates the crates at a rate of 2,400 crates per hour in downward motion.
Next, the individual crates are turned and emptied into a collecting container to remove any previously unnoticed residues.

After the automatic or manual filling of the transport crates, these are stacked in towers of 15, each totaling 2,400 mm in height. The new process, which attains a capacity of up to 14 crates per minute and line, automates and accelerates this - formerly manual and physically very strenuous - process.
A shuttle system then picks up four completed stacks simultaneously, groups them into a block, and transports them to the palletizer.

Depending on the control settings, these are either stacks of the same goods or mixed product stacks. Körber designed the PA11 especially for palletizing crate stacks.
Its sliding floor system with a capacity of 100 pallets per hour groups four stacks of crates next to each other in a unit and pushes them onto the pallet (Düsseldorf half-pallet or Euro pallet) provided by the pallet dispenser.

The ready for shipping pallets are transferred to the logistics department.

Since all the products in this large-scale bakery are packed in identical plastic crates, identification of the crates and pallets is relatively complicated.
Moreover, in the present case, there are no labels.

Körber solved this problem by incorporating a smart function into the controls: a crate tracking system monitors the movement of each product from the packing position up to the palletizer.
A text display shows the logistics operators the pallet number and the item number of the relevant product.

Results

This solid Körber concept requires just one palletizer for the entire plant. Nonetheless, the unit can put together and palletize a mixed consignment pallet with four different products.
A free program allows users to adapt the controls to their requirements.
Thus, for example, it is possible to freely select between 1 and 15 layers per pallet at the control panel.

An additional major customer benefit is the simple maintenance and care of the entire system.
The company's own employees can do this without any special knowledge during pauses in production.
This makes the customer independent of the supplier.

Any required software updates or changes can be done on request via VPN. For this, Körber offers a 24/7 software service.

Within six months Körber implemented an efficient overall system for fully automatic pallet and empty crate logistics for large-scale bakeries, one which stabilizes the production process and ensures user capacity reserves

**"Our goal was to decouple processes within the logistics stations as much as possible. This system enables the operators to know at a glance what product is on which pallet.
In this way it is possible to easily and quickly group goods for the next day's truck dispatch.
And the cycle starts all over again."**

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