FRoSTA in Bremerhaven: High quality frozen products manufactured according to the FRoSTA purity law

Hightech on ice ▶ In 1998, the FRoSTA AG, specialist for high quality frozen products, laid the foundation for a clear commitment to Germany as a manufacturing base at its head-quarters in Bremerhaven. The company started the project „Schottke 2000" and invested heavily in an advanced production line, a new warehouse for raw materials and a forklift control system for the optimization of the logistic processes. Even then, further extensions plans that were to reach well into the next decade had been made and FRoSTA was resolute in realizing them. Since 2001, TEAM's logistics software Pro- Store® pulls the strings of the FRoSTA logistics. All extensions and modernizations were made with a new interface to Pro-Store® and realized during ongoing operation.

SUCCESS STORY

ProStore® components

- Goods receipt
- Storage
- Quality assurance
- Re-positioning of stocks
- Warehouse management
- Material flow control
- Production supply and disposal via mobile terminals
- Shipping
- Stocktaking
- Inventory management
- Master data management
- Information system
- Batch tracing
- Host connection (SAP)
- Connection of automatic stock control including emergency strategies

- Radio-based forklift control system (Web SLS)
- Harvest processing (Rheintal plant)
- Yard management (truck summonsing system in Bremerhaven)
- Visualization component for „Dinner International" (fully automated production line) and yard management
- Connection of external service providers via data interface
- Connection of scales (Mettler-Toledo) in the spice weighing
- Sending and receiving of dispatch advice message (EDI DESADV)

Hardware and tools

- LINUX server
- Oracle database
- Oracle application server
- Approx. 600 users at 4 location

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FRoSTA AG is the market leader in frozen ready meals in Germany with roots dating back to 1905. Since 1978, the company consistently relies on building the brand FRoSTA as a guarantor of high quality frozen products. In 2003, the company introduced a purity law for its products and thus forgoes the use of colorants, additives and flavour enhancers which is unique in the conventional food industry. In 2009 the company achieved a turnover of around 400 million Euros.

Automatic goods movements for optimized processes

The two fully automated production lines in Bremerhaven can process up to three parallel jobs and produce up to 6,000 kg of finished dishes per line and hour. The warehouse for raw materials (FWD III) provides the production with frozen ingredients. It can hold more than 12,000 pallets.

The required pallets are transported fully automated on roller conveyors and chain roads to the production via a 70 meter long bridge.

There, they are finely distributed by the ProStore® forklift control system. Transport orders for the finished goods are also generated in the production area and the pallets are then stored in the fully automated shipping warehouse.

During the entire flow of materials, the ProStore® forklift control system controls all transport commands and thus provides an optimal material supply for and from the production.

ProStore® registers each movement of goods in the warehouse

It's minus 26 degrees in the warehouse for raw materials (FWD III) and it is so cold in production area that the cold chain is guaranteed not interrupted during the short production times.

Every store movement is triggered and registered by TEAM's logistics software ProStore®. For this purpose, the program is connected to the SAP ERP-system, which was introduced in 2005.

The ERP System controls all goods related operations, beginning with the purchase of goods. It notifies expected incoming goods, including the delivery plans, to ProStore® by creating corresponding orders. When goods are delivered, the staff opens the ProStore®-screen, acknowledges the receipt of goods and automatically compares the data to the plan.

"Dinner International":
fully automated production line

The products are constantly checked
for quality

During the entire production process
the cold chain is not interrupted

In the formulation of the functional specification the experience of the staff was considered

If the supplier has previously announced the delivery of pallets via electronic data interchange, scanners at the conveyor system receive the goods automatically. Parallel to the booking, a GS1-128 label is printed that identifies the pallet. Quality assurance takes a first sample from the pallet and puts a sample board of each pallet together. The sample board is labelled with an SSC (Serial Shipping Code), hereby it may be assigned to the pallet at any time. Now a transfer car brings the goods into the warehouse.

The goods now have the status „not yet freely available." Only the quality assurance can revoke this restriction by giving it the all clear.

Automatic storage into high rack warehouse

The storage is done dynamically, wherein a plurality of optimization criteria is taken into account. The software also considers security aspects. Each article is placed into more than one of the four rack corridors. This guarantees a permanent access to all articles, even in case of a control device failure. The SAP system creates records for all production and shipping orders as well as for all orders of goods.

The ERP system then transmits the data to ProStore®. Here they are processed and then returned online to SAP. Thus, both systems (SAP and ProStore®) work with identical data bases.

Reliable supply of raw materials

A ProStore® terminal, which displays the production order to the line manager is installed at each production line. The line manager logs on with the production order number and receives a job-related bill of materials with all the details on the articles and quantities needed for production. If he, for example, clicks on the item "peas", he automatically initiates the stock removal of this article.

Every stock transaction determines a change of inventory in the system. The pallet with the peas is transported via the conveyor bridge to the production area. Just before the conveyor deposits the pallet in the supply area, a fork lift driver gets the order to pick up the pallet. This order is generated automatically and displayed on the RF terminal installed in every fork lift. The fork lift driver takes the pallet, scans the Serial Shipping Code (SSC) and immediately the RF terminal displays to where he has to bring the pallet.

After the handover at the target location, the driver acknowledges the process. Hereby the consumption of the raw materials palette is reported to SAP. It only takes a maximum of eight minutes from the raw materials request to the delivery at the production line.

ProStore® forklift control system

FRoSTA uses a very advanced wireless forklift control system. Thirty RF terminals are installed at the production lines and another twenty terminals are installed on the forklifts in the production and the storage areas. Radio aerials which ensure a seamless communication are distributed throughout the premises.

The production demands are transmitted by radio to ProStore®, which generates a transport order with optimized transport routes.

Optimized picking processes

The order picking in the shipping warehouse is paperless. A tour-oriented dispatch is then organized. Some of the carriers can carry out the route planning directly in ProStore®. The approval of a tour initiates the dispatch.

Transport orders for the required pallets are generated, the pallets are released fully automated from the high rack warehouse and are transported to the corresponding shipping gate. After the goods have been loaded, ProStore® automatically generates the delivery note, reports the loaded goods to SAP and the inventory is updated. When indicated, ProStore® sends an additional dispatch advice message (DESADV) of the pallets to the customers or the carriers respectively.

Early information and involvement of the employees guarantees success

Almost exactly one year passed from the formulation of the specification to the initial operation of ProStore® in January 2001. For the people in charge of this project at FRoSTA, it was of crucial importance for the success of this complex task to arouse the interest of all participating colleagues, and to create understanding for the extensive innovations and changes.

For this purpose, early internal information events were organized, from which the project managers also received a lot of inspiration from other departments and divisions that could be included in the description of the tasks.

In collaboration with TEAM very early training sessions were conducted. This good preparation has paid off. From the very beginning all employees were able to operate ProStore® easily.

Continuous enhancement of the systems

The introduction of ProStore® achieved significant cost savings from the early years. But not enough, step by step the intralogistic processes were modernized and optimized consistently.

ProStore® was introduced in the FRoSTA plants in Elbtal, Rheintal and Bydgoszcz (Poland) and a number of new modules and functions were put into operation.

These include the integration of spice weighing with automatic integration of scales, the expansion of the production lines for the international ready meals ("Dinner International") and the introduction of a modern visualization component.

In addition, the harvest processing in the Rheintal plant has been optimized, the control of the high rack warehouse including various emergency strategies in Bremerhaven has been integrated

and a yard management (truck summonsing system) has been included. External service providers were connected to the system via interfaces, and thus a much higher degree of process automation has been achieved.

A positive outcome

The Logistics department, which was responsible for the new building of the high rack warehouse for raw materials as well as for the introduction of ProStore® in all FRoSTA plants, are very pleased with the results. "The new building of the high rack warehouse for raw materials and the introduction of ProStore® in all operative areas of FRoSTA have significantly improved logistics.

All operative processes are run paperless and fully automated. We were able to reduce costs and we can point to a much improved stock availability."

SUCCESS STORY