

# 11,000 products per hour: the story of Netto's new central warehouse

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Netto's new central warehouse in Køge won the Danish Logistics Award last year. Warehouse Manager Jørgen Larsen dropped by Consafe Logistics conferences in Skovlunde and Fredericia and told the story of how Denmark's largest distribution centre was created. The new central warehouse allows Netto to triple its capacity without compromising on the logistics.

"There are still many people who believe that the quality of the product is enhanced by presenting it well in the store, but that has never been Netto's strategy. Netto's aim is to bring the products to the customers in the best and cheapest way, and through the years the supermarket chain has gained a large market share by maintaining a strict control of its logistics. Netto can meet 95% of our convenience goods needs, at the market's lowest prices, and earn money from it. For this reason, and because the chain develops its logistics on a continuous basis, this year's Danish Logistics Award goes to Netto." This was the jury's explanation for giving Netto the 2004 Danish Logistics Award.

## Three new stores a week

On 1 April 1981, the very first Netto store opened in Frederiksberg, Copenhagen, and the organization has since grown to the

point where today it is Denmark's largest chain, with a store opening on average every third week each year since then. The first central warehouse was built in Ishøj in 1988 and has been expanded several times, so that in 1999 it consisted of a complex of big and small disconnected warehouse buildings.

In 1999 Netto had had enough. The Ishøj warehouse was spread across many separate buildings, and Netto could not get building permits to connect them all on the lot in Ishøj. It became more and more difficult to process the ever-increasing flow of crates and pallets in an effective way within the existing physical framework, and the logistics costs shot up.

## The all-important analysis phase

"We therefore carried out a thorough analysis of our requirements for the warehouse. That was probably the most boring, but at the same time some of the most valuable work I've taken part in. The analysis and simulation phase made it possible for us to make a lot of free mistakes and experiment our way to the right solutions. It was a very important phase for the finished result", Warehouse Manager Jørgen Larsen told the audience at the conference "Progressive/Optimal Warehouse and Logistics Management". The conference was organized by



Consafe Logistics A/S and held on 2 March in Skovlunde, Denmark, and 3 March in Fredericia, Denmark (2005).

Netto made use of consultants from Langebæk Logistics A/S for the analysis work. “The analysis work put much greater demands on data access and data quality than we had imagined. We felt the consultants asked us an unpleasant number of questions about our data; but today we have to admit that it was essential in order to find the right solutions. For example, we realized that we made 11,000 unnecessary pallet moves every day in the old warehouse. That corresponds to more than 25 pallet moves per hour per employee. The conclusion was that we had to go with a so-called green-field solution, which meant starting over and building everything up from scratch”, said Jørgen Larsen, who has worked for Netto since 1986.

### **Room for expansion**

The new solution was based on an eight-year scenario for the development of the Netto chain. “It was damned difficult, because Netto was and still is growing rapidly. This means that it’s very difficult to predict the stock needs”, said Jørgen Larsen. His slide for the presentation says there are 861 Netto stores in Europe; but he informs us that since the slide was designed, this number has grown to 876.

The new central warehouse – or distribution centre – opened in 2003. It is the size of two football pitches, and supplies products

to all the Netto stores in Denmark. The warehouse and terminal cover 45,000 square metres, and the administration facilities cover an additional 7,500 square metres. It took two years to plan and build. Daifuku, Crisplant, Univeyor and Consafe Logistics are the primary suppliers of equipment and systems for the new warehouse. The site can process 1.5 million pallets a year.

The suggested green-field solution originally had the potential to lead to a drop in logistics costs of around 25%, and it was dimensioned and designed to make room for future expansion.

### **11,000 products per hour**

It came to consist of three terminals for fresh food, dry groceries and returned goods respectively, a goods reception area with 40 gates, just as many gates for goods dispatch, a height of 25 metres, room for 20,000 pallets, and 27 so-called STVs (Sorting Transport Vehicles). These vehicles are unmanned and equipped with optical sensors that prevent collisions. When they have no work to do, the vehicles move to waiting position by one of the chutes. The products are lifted off the pallet with a layer-picker, which can lift the products one layer at a time with the help of underpressure. The products are put singly on a conveyer belt that scans their barcodes and sorts them automatically, sending them to chutes for each Netto store. If the numbers of products do not correspond with the orders, the excess products are distributed so all stores get a few too many.



Finally the pallets for the individual stores have to be packed, and this happens manually – in fact it is the first manual work in this process. Everything else has been product- and process-controlled, the physical work being controlled fully automatically by the products' barcodes and the stores' orders. The so-called dynamic capacity of the warehouse is as follows: 11,000 products processed per hour, 900 pallets packed per hour, and a stock turn of more than 60 times a year. Thus the entire stock is replaced more than once a week!

#### **Lower logistics costs**

The dry groceries stock for whole pallets is 24 metres high, and 14 cranes stock the pallets in an area of 4,200 square metres. In the half-pallet warehouse – from where the pallets are distributed directly to the stores without picking – there are an additional nine cranes. The cranes operate at 250 metres/min. horizontally and 63 metres/min. vertically.

“In the short term the purpose of the new distribution centre is of course to minimize our unit costs”, said Jørgen Larsen. He added: “At the same time we strive for the highest possible stock turn rate by minimiz-

ing the average stock content, but also by maximizing our supply security through purely technical solutions, and by optimizing the average product flow and season fluctuations. In addition, we have tried to create good solutions for our employees in the form of ergonomic work stations and automatization of heavy lifting”.

#### **Ready for growth**

“For Netto it is important that we are prepared for continued growth in the coming 20 years, and now we believe we are. We can increase the capacity quite considerably without bringing the overall concept into the danger zone”, said Jørgen Larsen.

Thus Netto is in a position to gain an even larger share of the convenience goods market in the coming years. The first time horizon is 2008, when the capacity demand is expected to be significantly larger than today. And it is possible to expand, so that through investments in buildings and equipment the activity can be increased by a further 100%. This makes possible almost a tripling of the capacity without compromising on the logistics.

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