THE CUSTOMER AND THEIR REQUIREMENTS

“Food should inspire with taste and quality” is the motto and driving force behind the apetito group, whose headquarters are located in the Westphalian city of Rheine. Founded in 1958, the family-owned company specializing in frozen ready-made meals is a market leader in the food industry. 1.3 million people a day, primarily in Germany and other European countries, enjoy meals from apetito. Decades of experience in providing healthy meals, combined with professional cooking and continually new and tasty recipes, have made apetito products increasingly popular with consumers of any age.

apetito supplies its meals to daycare centers and schools, companies, hospitals and senior living facilities, as well as to individuals at home as part of meals-on-wheels programs. In addition, catering and retail businesses offering frozen food products round out the product offering of the convenience food specialist.

apetito has 8,900 employees worldwide, and in 2012 the company achieved sales of EUR 733 million. This represents an increase of more than six percent compared to the previous year and can be considered a reliable indicator for positive development in the future – which will create new challenges for the logistics infrastructure of the food company.

“Our existing deep-freeze warehouse with an order picking system at the Rheine location was 35 years old. The capacity reserves of the system were exhausted at peak times,” states Guido Hildebrandt, director of sales and marketing at apetito. The expansion called for a new and considerably more powerful intralogistics system.

Under the direction of Swisslog, a new state-of-the-art logistics and distribution center has been built that is unique in its combination of innovative technology and cold storage environment.

“Under the direction of Swisslog, a state-of-the-art logistics and distribution center has been built that is unique in its combination of innovative technology and cold storage environment. This advanced logistics solution will strengthen apetito for the medium term and position us for further growth,” Ulrich Fenger, head of logistics for the company, confidently states.
The logistics center of apetito AG in Rheine was put into operation in 2013 and replaced an old deep-freeze warehouse. Engineered and implemented by Swisslog, the logistics and distribution center is designed using efficient, state-of-the-art technology in terms of functionality as well as dynamics, scalability and environmental friendliness. apetito’s new logistics center meets the company’s current capacity requirements and can be expanded at any time.

The centerpiece of the new logistics and distribution center is an automated carton warehouse with a connected order picking area. In addition, the distribution center has technology and employee rooms as well as a visitor area. apetito invested EUR 22.5 million in the logistics center – the largest single investment in company history. Fifty percent of this amount was invested in construction and technology, respectively.

The two-year planning phase was used to develop, test and simulate more than ten different models. Ultimately, the company decided on the concept that was implemented.

**THE SOLUTION**

**AUTOMATED CARTON WAREHOUSE**

On a footprint of 1 085 square meters, the facility houses a 35 x 31 x 21 meter (LxWxH) automated small-parts warehouse with 77,500 storage locations. Maintained at a temperature of minus 24 degrees Celsius, the warehouse is used to store food packed in boxes. The average storage period is 1.5 days (= reach of the warehouse).

The deep-freeze warehouse includes 18 aisles of racking on two levels with 18 stacker cranes. Their acceleration is approximately 22 km per hour in less than two seconds, which matches the performance of many sports cars. This results in an average of 170 in- and outfeeds per hour.

**ORDER-PICKING AND SHIPPING AREA**

The automated carton warehouse interacts with a 2,192 square-meter picking and shipping area, both of which are maintained at identical temperatures. A total of 1.5 km of roller conveyors, driven by 530 motors, is used to provision products for putaway and to retrieve orders. Replenishment boxes are initially provided in the form of pallets. These are separated using two fully automated depalletizers and then fed to the system.

“The special feature of the box handling process in the new logistics center is that the system operates without the help of bins or trays. The cartons travel directly on the conveyor and are put away and retrieved like that in the automated small-parts warehouse,” explains Dr. Volker Jungbluth, Managing Director of Swisslog GmbH.
OPTIMIZED PACKING PROCESS

The shipping area of the new apetito logistics center has eight packing stations with a guaranteed output of 3,050 boxes per hour. Thanks to sophisticated 100 percent sequencing performed by a reshuffler, the sequence of the boxes presented to each picker matches the exact sequence of the orders to be processed. Pickers do not need to sort the products by hand or store them temporarily at their workstation. Instead, they can transfer the incoming boxes directly to the transport units, for example pallets. This ensures that order processing is very time-efficient and virtually error-free. To further assist the pickers, all packing stations are ergonomically optimized based on the latest scientific findings. Every load carrier can be adjusted to meet different packing height requirements.

Thanks to this holistic implementation, the new distribution center is able to handle up to 730 load carriers per day in two shifts. This roughly matches the deliveries to 1,000 clients during the same period.

WAREHOUSE MANAGEMENT AND MATERIAL FLOW CONTROL

The warehouse management system was also provided by Swisslog and controls all processes in the logistics center. Using an interface to apetito’s proprietary SAP system, it receives the required data and confirms orders as they are completed. One highlight of the system is a comprehensive load carrier calculation that uses a wide range of criteria to ensure the packing stations are being used optimally. In addition, the warehouse management system implements strategies for maintaining the exact box sequence on the load carriers. The entire material flow is managed by a seamless and reliable control system that differs in one main aspect from conventional material flow control processes: apetito’s logistics solution uses a “logical” tracking process.

This innovative approach involves system-controlled tracking of the path of each box, without the use of external media such as barcodes or RFID technology.

ENVIRONMENTALLY FRIENDLY

Sustainability is a must for new construction. When building its new logistics and distribution center, apetito focused not only on profitability, flexibility and optimal working conditions but also placed high priority on environmental friendliness and energy efficiency. An excerpt from the specifications: The 18 stacker cranes of the automated carton warehouse are equipped with regenerative braking technology. The main drives of the depalletizers operate similarly using energy recovery. The frost-protection heaters and the heating system for all employee areas use heat recovery from the cooling systems.

FACTS AND FIGURES AT A GLANCE

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<th>APETITO LOGISTICS CENTER</th>
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<th>CARTON WAREHOUSE</th>
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<th>SHIPPING AREA</th>
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The permanent lighting for the main picking areas is provided by long-life LED technology that generates no heat. Temporary lighting is controlled by motion sensors.

To minimize energy-intensive loss of cold air, the loading docks for trucks are designed with DBO (docking before opening) technology. In addition, the fire safety system in the warehouse is resource-friendly; instead of sprinklers, it uses an inerting system.

A concentration of 15 percent oxygen by volume prevents the outbreak of fires.

BENEFITS

- Intelligent logistics solution of the future; fast, flexible, scalable and profitable
- Highly innovative technology in a deep-freeze environment
- Unique “logical” material flow control
- Energy efficient and resource friendly
- Ergonomically optimized workstations
- Expandable at any time to meet new requirements

SWISSLOG SERVICES

- Engineering, simulation and implementation of the entire intralogistics system (plant automation)
- Warehouse management and material flow control including connection to an existing SAP system
- Complete facility visualization
- User training and after-sales service