**"Warehouse automation is particularly valuable in freezer logistics"**

* **Labor shortage boosts demand**
* **Companies are placing increased value on sustainability and energy savings**
* **Up to two-thirds reduction in energy is possible**

**(Marchtrenk, August 31, 2021) More and more companies are making use of automated freezer warehouses instead of manual ones. For an explanation, we interviewed Michael Schedlbauer, Industry Manager for Grocery at TGW Logistics Group.**

**How has the refrigerated logistics market developed in recent years?**

**Michael Schedlbauer:** In 2020, the coronavirus pandemic resulted in disproportionately high growth in this segment. People cooked at home more often and bought more frozen ingredients such as vegetablesor fish. At the same time, demand for convenience products grew. In the US, for example, the frozen food sector grew by 20 percent. Numbers from Germany also reflect this trend. The Verband Deutscher Kühlhäuser und Kühllogistikunternehmen (VDKL), a German trade association of refrigerated warehouses and refrigerated logistics companies, reports that in 2020, its refrigerated warehouse members had an average total utilization of 81.4 percent, making them 1.3 percent more full than they were as of 2019 (80.1 percent). Overall, they were more fully stocked than at any time in the last eighteen years.

**This sounds like a crisis-resistant logistics segment.**

Indeed. We are currently seeing many companies and investors make investments in this area. For one thing, interest rates are low. Secondly, whether COVID cases go up or down, people will always need to eat and drink. This makes the industry very stable and capable of withstanding external influences. Therefore, long-term investments in new, automated warehouse structures are worthwhile.

**What did the situation look like before the COVID-19 outbreak?**

The market has grown continuously in the past decade, with the players expanding their capacities continuously - including retailers and contract logistics companies alike. TGW, for example, recently completed a project with Dutch service provider NewCold, which works for a renowned food and beverage producer. In addition, the COOP central warehouse in Switzerland went live successfully. Two trends are currently shaping the face of grocery retail: centralization and insourcing. The COOP project in Schafisheim is a good example. The Swiss company has centralized its freezer logistics and merged three regional distribution centers into one. Moreover, this facility is also the regional warehouse for fresh goods for Northeast Switzerland. As a result, this building includes multiple temperature zones in its 2.4M square feet of total space.

**Many people think that automation means investing large sums of money.**

Looking at the big picture – Total Cost of Ownership – reveals a different situation. Warehouse automation is particularly valuable in freezer logistics. Stringent requirements exist in food retailing. The pick quality must be perfect, the deliveries must arrive on time and the refrigeration chain must be unbroken. Companies must be able to prove this without any gaps and at the touch of a button. Being less dependent on the labor market also provides additional peace of mind to many of those responsible for logistics. Minimized loss of goods – for example due to damage from forklifts – has a further positive effect on the business case.

**How important is transparency?**

Let's take a look at product recalls, for example. In a worst-case scenario, both the producer and the dealer must be able to – with a few clicks – identify which lots are affected. The only way for companies to gain this transparency is digitization and automation in the supply chain. In addition, an increasing number of food and beverage producers are offering their customers the ability to track the complete value chain – for example, tracking fish from the time they are caught to the freezer case. This is also enabled by the IT used in automated warehouse solutions. In addition to digitization, sustainability and labor scarcity are the foremost drivers of for automation.

**Why is sustainability important?**

In these times of increasingly severe climate change, many companies are becoming aware of their responsibility to conserve resources. This is also gaining importance in communication with customers, as is demonstrated by COOP's "Deeds instead of words" campaign, which now includes 400 specific measures. Many companies have pledged to implement ambitious goals for cutting their energy consumption and/or emissions or making their business completely CO2-neutral. For this purpose, they carefully examine each and every stone in the supply chain mosaic. For example, by centralizing its distribution centers in a single, innovative facility, COOP is able to reduce carbon dioxide emissions by up to 10,000 tonnes a year. An old manual freezer warehouse refrigerated to -13 degrees Fahrenheit uses significantly more energy than a new, automated and volume-optimized facility with the same output. Energy costs keep going up, meaning that one reason sustainability is attractive is cost-effectiveness.

**Why is labor shortage an important topic for the industry?**

In many cases, this is the decisive argument when making an investment. In Western Europe, finding employees to staff freezer warehouses is nearly impossible – to say nothing of management employees in the office. There are some facilities in Western Europe that are almost entirely staffed with expatriates from Ukraine or other distant lands. However labor scarcity is a global challenge and we can see the same issues for example in North America. Morever working conditions are tough in ice-cold temperatures. Employee turnover is high, despite the substantial wage premiums paid in many countries. It is becoming increasingly difficult to find, train and retain employees. Another complication is the amount of prescribed breaks, which means the workers are in the facility for a relatively short time compared to warehouses operated at room temperature. In accordance with DIN 33403-5, a 30-minute break is prescribed after 90 minutes of work. This is absolutely necessary for the work to be feasible and bearable over the long term. However, it makes the business case for a manually operated refrigerated warehouse significantly weaker than the case for a non-refrigerated warehouse.

**How is the work situation in an automated refrigerated warehouse improved?**

Automation replaces hard physical work at below-freezing temperatures. At the same time, the solution is designed such that the remaining tasks can be shifted to warmer temperature zones of between 23 and 28 degrees Fahrenheit. These processes include shipping and receiving, order picking and palletizing/depalletizing. The last two processes can also be automated using robots. At the end of the day, automation creates jobs with higher qualifications – in the control center, for example.

**Besides the labor shortage, what other arguments are there for automated refrigerated warehouses?** Experience has shown that productivity can be doubled in some cases. Two other benefits are the higher process quality and the energy savings mentioned earlier. These savings can be achieved when using an automated facility with a much more compact design than a manual solution. It's possible to save up to two thirds of the energy used for cooling here.

**What is the best automation strategy?**

Currently, almost all facilities are designed to have shuttle systems. Compared to mini-load cranes, they offer the same storage and retrieval performance with significantly fewer aisles, which saves on volume. Mini-load cranes are typically suitable in small systems with low output.

**How can you make sure that shuttles work at -13 degrees Fahrenheit?**

TGW uses the latest robot and drive technology. Our solutions can be used in any application in the temperature range between -22 and +104 degrees Fahrenheit. For a shuttle applied in a deep-freeze environment, we exchange just three components for optimum operation and adapt the lubricant.

**What does the ideal process for a refrigerated warehouse look like?**

Our standardized end-to-end fulfilment solution, which is adapted specifically to the customer, consists of several modules. The process begins at goods receipt. The palletized goods are inspected, given a label and fed into the high-bay warehouse at a temperature of -13 degrees Fahrenheit. For order picking, goods are retrieved and depalletized as required, while pallets with remaining quantities are returned to the storage system. The depalletized units are transferred to a tray and put into storage in the shuttle system. For picking according to the goods-to-robot principle, the required items are removed from storage, with the trays being sequenced and unloaded as required. Palletizing is automated using Autostax robots. The articles are arranged on the customer's load carrier - usually a pallet or roller cage - according to various criteria. The following prioritization is the rule: stability of the pallet, optimization of the volume and store-oriented arrangement based on goods families for fast stocking in the store. The customer load carriers are then secured automatically and made available in the correct sequence for transport by lorry in the outgoing goods buffer.

**Talking about Energy efficiency. How can significant savings be attained?**

The basic principle for minimizing energy consumption: Both the volume being cooled and the building footprint must be as small as possible. Ideally, the solution is erected in a building with a maximum height of 131 feet allowed in the construction area. This keeps the footprint small and largely prevents energy losses caused by the roof surfaces.

**Good building planning is of little use if the execution is poor…**

Correct. Important prerequisites for high energy savings are a tightly sealed system, outstanding insulation and good airlocks and doors. In addition, dehumidifiers are required for air treatment. The advantages of automated warehouses are that there is no need for gate openings for forklift traffic and that people and lighting - both sources of heat - can be reduced to a minimum. TGW also makes use of energy-saving solutions. Shuttle lifts and KingDrive® conveyor systems have technologies for energy recuperation, while the shuttles themselves are driven with innovative SuperCaps.

**About Michael Schedlbauer**

Retail logistics expert Michael Schedlbauer works as Industry Manager at TGW Logistics Group global headquarters in Marchtrenk, Austria. After working in a variety of operational and strategic roles at Siemens AG for eight years, Schedlbauer joined TGW in 2016. The intralogistics specialist studied Mechanical Engineering at the Technical University of Munich and earned his diploma at the University's Chair of Materials Handling, Material Flow, Logistics.

[www.tgw-group.com](http://www.tgw-group.com)

**About TGW Logistics Group:**

TGW Logistics Group is a leading systems integrator of automated warehouse solutions. With over 50 years of experience the automation specialist designs, manufactures, implements and maintains end-to-end fulfillment solutions for brands such as Urban Outfitters, the Gap or TVH.

TGW Logistics Group has subsidiaries in the US, Europe and China and employs more than 3,800 people worldwide. In the 2020/21 fiscal year, the foundation-owned company generated a total turnover of 952 million US dollars.

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