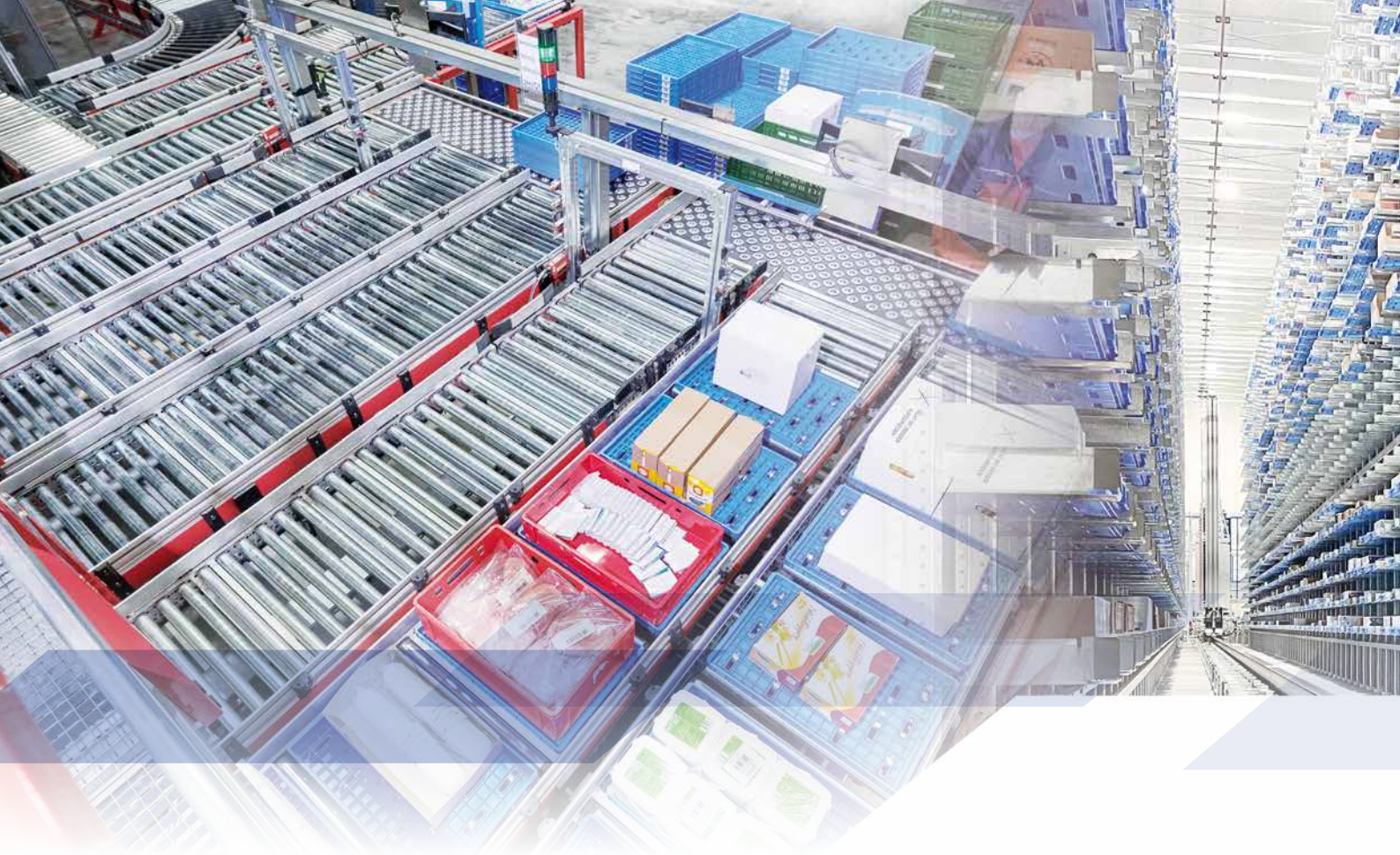




we make logistics simple

**Automatic dry,
cold and deep-freeze storage**





Innovative automation

For gastro suppliers, fresh food services and full-range suppliers

For more throughput, shorter delivery times, higher storage density

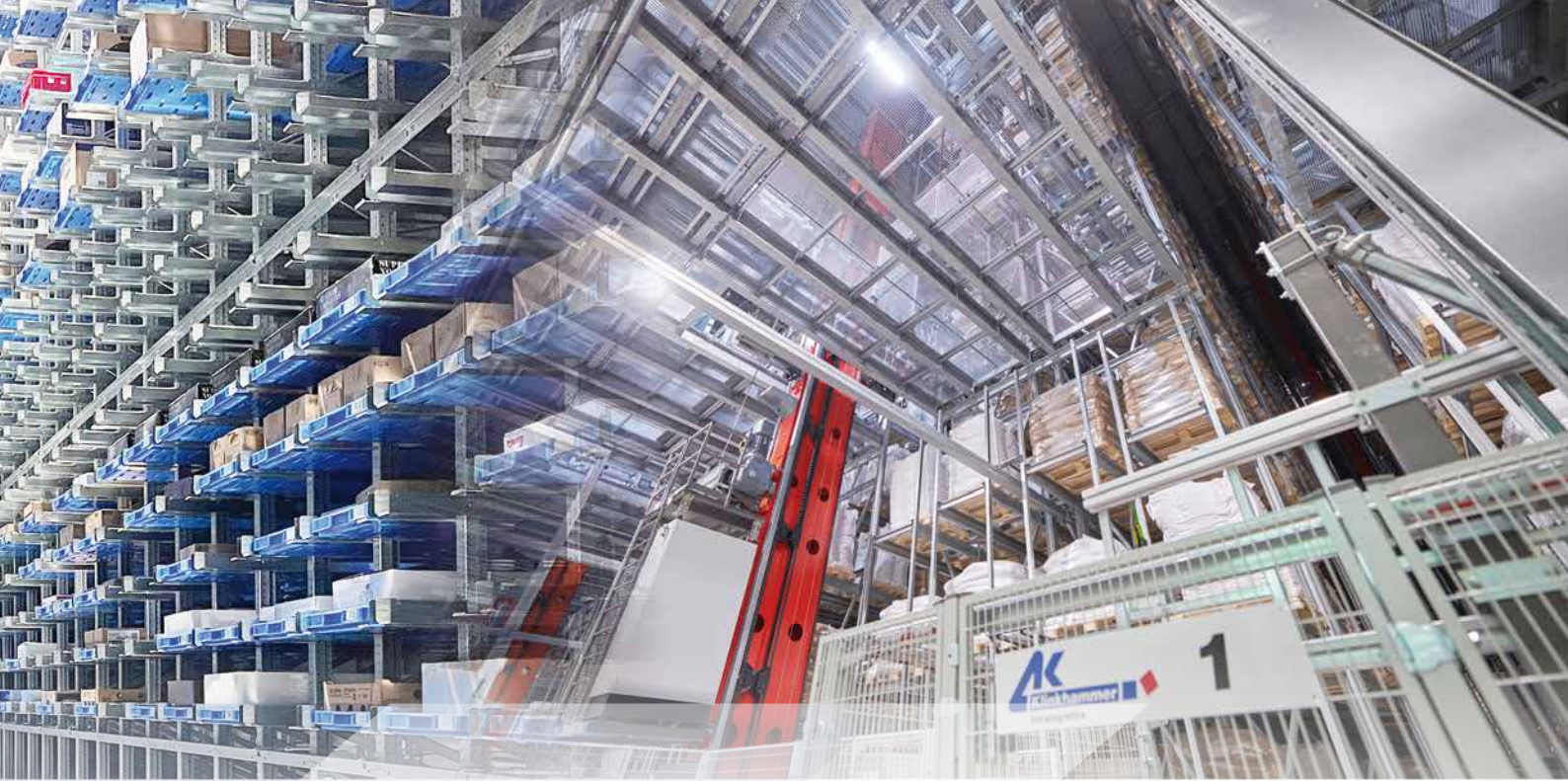
Whether frozen, fresh or dry goods - we are revolutionising storage processes with automated solutions.

Advantages of an automated system

- Improvement of working conditions in all temperature zones
- Ergonomic workstations
- Clear guidance for employees at the workstation
- Safety and permanent inventory
- Future security and sustainability
- Optimum, energy-efficient use of storage space
- Reduction of the number of errors to around 0%

Simplify storage processes

- Goods by weight, partial goods, batches and best-before dates made easy
- Automatic pre-picking
- Frozen food preparation zone
- Optimised loading of roll containers
- Intelligent aisle layout and redundancy
- Customisable, intuitive software



Fresh food stored smartly

Fresh and frozen products require uninterrupted cooling to maximise their shelf life and comply with all legal cold regulations. Food wholesalers are faced with challenging tasks such as e-commerce, just-in-time delivery, volatile demand behaviour, rapid order consolidation, reorders, consideration of goods by weight, batches and best-before dates. For these reasons, in complex cold and deep-freeze warehouses there is no way of avoiding automated storage systems. These systems, together with the intuitive and user-friendly warehouse management software KlinkWARE® are the key to success.

Klinkhammer is a specialist for optimised logistics processes in dry, cold and deep-freeze logistics. From innovative logistics concepts the installation of storage, order picking and robot technology through to pioneering software, Klinkhammer offers everything from a single source.

Temperature data, product barcode and manufacturer information, best-before date and batch number can be integrated into the warehouse management software KlinkWARE®. This ensures that the cold supply chain is maintained for perishable or frozen goods and product and shipment tracking is guaranteed.



Dry, cold and deep-freeze storage

Well thought-out concepts

Your specialist in fresh food logistics

Focus on freshness

Warehouse automation in the fresh and dry area enables optimised storage, pre-picking and sequenced delivery of your goods at ergonomic workstations. The roll containers are then loaded in a precise sequence and with maximum efficiency, taking into account packaging sizes and route planning. The various functional areas such as storage, conveyor technology, sequencing and workstations are controlled by our control technology KlinCONTROL® and our material flow control and warehouse management software KlinkWARE®. With the KlinkVISION® system visualisation, you can monitor the function of the system at all times in a graphic display.

Well thought out and ice cold

Whether at -22°C or colder, our solutions are designed to provide frozen products the best possible storage environment. Refrigeration is expensive and labour-intensive work in a deep-freeze warehouse is demanding. When operating manually with forklift trucks, the constant entries and exits lead to large losses of cooling energy. Automated deep-freeze warehouses offer a high storage density and ensure that hardly any energy is lost during storage and retrieval thanks to efficient airlocks. Picking takes place in the plus degree range, which significantly improves working conditions. Trays or containers are provided at an ergonomic height at the workstation using conveyor technology at the right time and in the right order for the customer. Then the roller containers can be loaded accordingly. All processes are efficiently controlled and permanently monitored in the automated warehouse. This achieves high performance with low personnel and administrative costs.



KlinkWARE® - User-friendliness at the focus

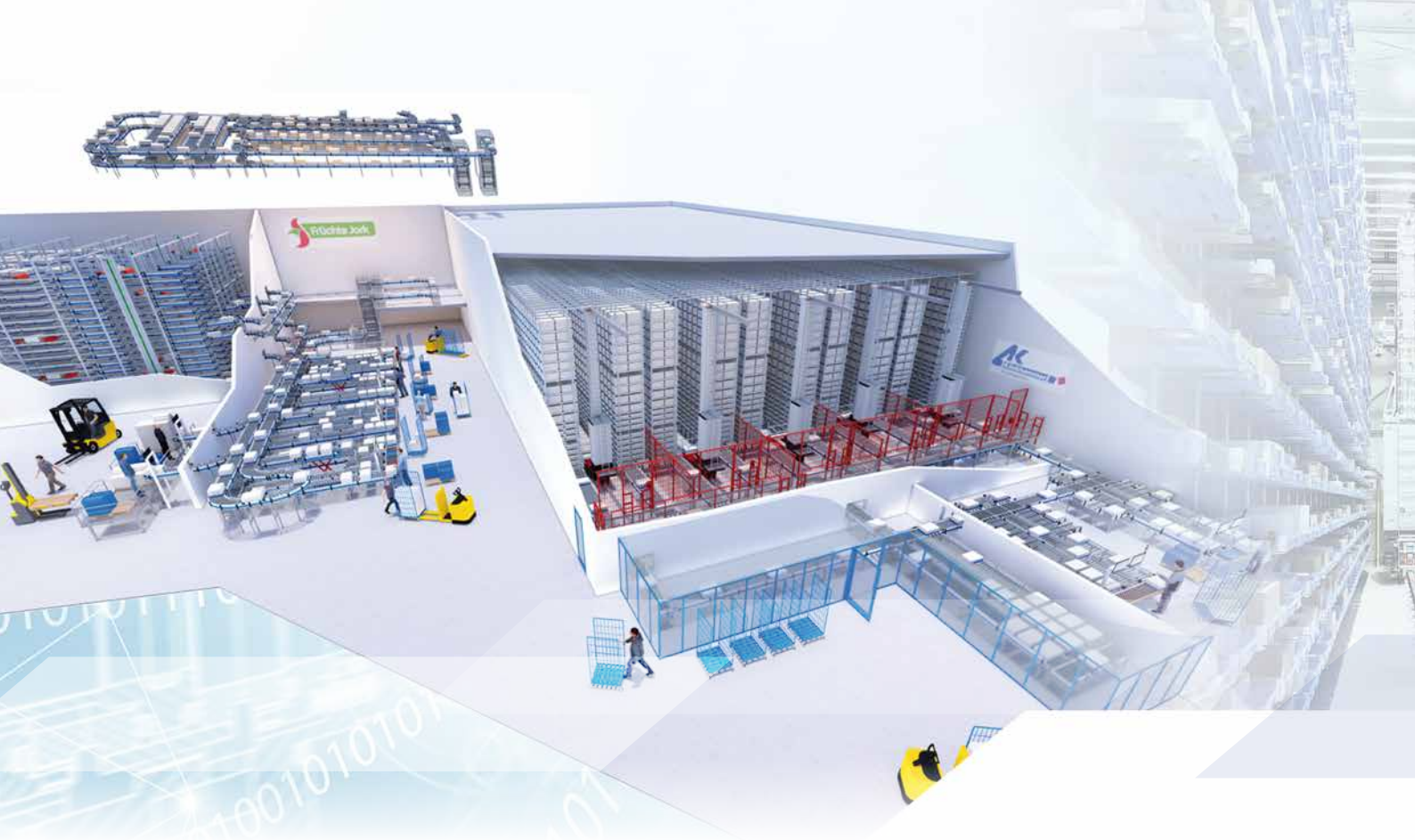
Technology that is simply enjoyable: our user interfaces of the warehouse management software are intuitive and user-friendly designed. This ensures short training periods and easy-to-understand processes with clear guidance for your employees at the workplace.

Logistics planning - manufacturer-independent, technology-neutral

Professional logistics planning guarantees a manufacturer-independent view of the most economically sensible and effective solution for internal logistics tasks. With a new planning project we always go through similar strategic planning phases, to present our customers with the optimum overall solution.

Your warehouse. Our promise.

- Customised consulting
- Technology-neutral and system-independent planning
- Reliable realisation
- 24/7 service and real-time monitoring



Früchte Jork

Best Practice: High-performance shuttle system

Optimised sequencing and pre-picking

In addition to the automated 5-aisle deep-freeze warehouse with trays, the fresh and dry storage area is equipped with a high-performance shuttle system system for buffering and sequencing and state-of-the-art conveyor technology.

Due to the growth and the expanded product range to around 13,000 items, Früchte Jork reached its capacity limits. In the previous manually operated deep-freeze warehouse over 1,000 different types of food were picked at -22°C with forklift trucks. With the warehouse automation the company not only wants to increase efficiency and picking performance, but also to improve the working conditions for the employees.

The new, automated, 5-aisle deep-freeze warehouse offers 26,280 storage locations for trays and speeds up processes considerably. Ergonomically designed picking workstations make physical labour easier. To ensure that the goods are at the right time, in the right order, a sequence buffer was installed at the picking stations. Goods by weight and partial goods are also considered. Thanks to the use of trays as loading aids cartons in a wide variety of sizes, designs, heights and qualities can be stored flexibly in the automated small parts warehouse. Each storage and retrieval unit has power caps for energy recovery and camera technology for visualising the racking system.



The high storage density of the automated warehouse saves storage space, which reduces the need for cooling and refrigeration technology. The frozen goods are picked at +2°C. This leads to better working conditions and cost savings, as the mandatory break times in the deep-freeze area are no longer necessary. In a second construction phase, a 4-aisle, automatic, high-performance shuttle warehouse for the cold and dry areas will be implemented. It covers various temperature ranges. The shuttle warehouse will be used as an order consolidation buffer. Partial orders are automatically combined into one order.



Frischdienst Walther

Best Practice: Automated temperature trio

Minimised error rates and throughput times

The delivery wholesaler has invested in an automated dry, cold and deep-freeze warehouse with three climate zones. With automated storage technology, the food is delivered to the gastronomy even faster using storage and retrieval cranes and KlinCAT® multi-level shuttles.

Orders of customers from restaurants are often placed at very short notice and 95% of them have to be delivered within 24 hours. The demand for a wide variety of deep frozen products is continuously growing. Capacity, speed, efficiency and flexibility were to be significantly increased while optimising space utilisation. Frischdienst Walther therefore decided on an automated dry, cold and deep-freeze warehouse with tray technology.

Three automatic warehouses cover three climate zones. The automatic deep-freeze warehouse with a temperature of -22°C provides 19,680 tray storage locations. Deep-freeze-capable technology, such as special drives, control cabinet heaters, suitable light barriers and sensors as well as temperature-resistant plastics guarantee high system availability even at -22°C. The automated fresh goods warehouse in the temperature range from +2°C up to +6°C is equipped with three high-performance KlinCAT® multilevel shuttles. It also serves as an order consolidation buffer. Pre-picking orders are temporarily stored for shipping, to consolidate them with goods from other storage areas at a later time. This significantly accelerates order processing and decouples the processes.



The dry goods warehouse, which has no climate control, is used as 2-aisle automated small parts warehouse for B, C and D articles. Due to the wide variety of packaging designs trays are used as loading aids in all three storage areas. The connection of the Klinkhammer KlinkWARE® warehouse management software including material flow control to the existing ERP system guarantees optimised processes and transparency. All warehouse and functional areas are connected in a way that shortest possible distances are ensured and the cooling loss as well as the introduction of heat and humidity are kept as low as possible.



Kofler

Best Practice: Inerted deep-freeze warehouse

High storage density, high energy efficiency

A 2-aisle, 20 metre high automated deep-freeze warehouse with trays is the heart of the logistics centre. The orders from the deep-freeze warehouse are combined with goods from a pick-by voice-operated fresh and dry goods warehouse.

The existing manual deep-freeze warehouse featuring a storage capacity of 1800 pallets guaranteed a high level of delivery reliability, but had reached its limits with the planned future growth. The goals were additionally to the picking according to the “goods-to-man principle” an effective use of space, minimal access times and a 100% delivery quality and picking accuracy.

The new logistics centre integrates an automated, 20-metre-high, inerted deep-freeze warehouse with order picking area and pick-by-voice-operated cold and dry storage areas. The core is the 2-aisle, automated tray warehouse in the deep-freeze area from -18°C to -24°C. Due to the wide variety of packaging designs in the frozen food range, a tray is used as loading aid. The automatic deep-freeze warehouse offers space for over 24,000 tray storage locations with different carton height classes in order to optimise storage density. The order picking area is thermally separated from the actual deep-freeze area and positioned in an area with controllable ambient temperature. The warehouse is inerted and operated with a reduced oxygen content in order to minimize the risk of fire. The warehouse is controlled via the material flow control and the warehouse management system KlinkWARE®.





Since 1972 Klinkhammer has been standing for:

- Technology-neutral and system-independent logistics planning
- Pioneering storage, picking and robotic systems
- State-of-the-art warehouse management software
- Efficiency-enhancing visualisation & control technology
- Customised customer service and support around the clock
- Innovative logistics concepts that simplify business processes



Klinkhammer Intralogistics GmbH

Wiesbadener Str. 13 · 90427 Nuremberg, Germany
 Phone +49 911 930 64 0 · Fax +49 911 930 64 50
info@klinkhammer.com · www.klinkhammer.com

Klinkhammer Intralogistics Poland

www.klinkhammer.com

Klinkhammer Intralogistics Denmark

www.klinkhammer.com

Klinkhammer Förderanlagen Stahl- und Montagebau GmbH, Halle (Saale)

www.klinkhammer-laser.de

