

We bring dynamism
to the corrugated board
industry



“For the success of our renowned customers, we design and implement innovative storage and conveyor technology solutions, from automatic format goods to finished goods storage.”

STEFFEN DIETERICH | MANAGING DIRECTOR
HÖRMANN INTRALOGISTICS



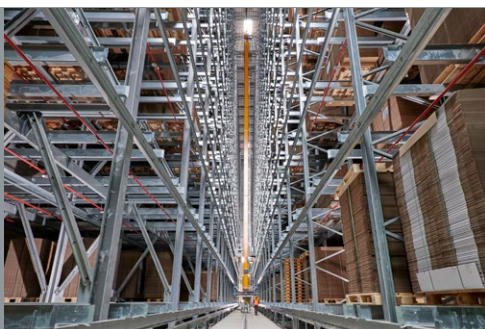
Corrugated cardboard intralogistics – for a more successful future

With decades of experience in the corrugated board sector, we specialise in gentle storage and sensitive handling systems for corrugated board using the latest specifically developed conveying and storage technology.

Our corrugated board systems offer storage solutions for palletless unsecured stacks, and high-bay storage for finished goods, with conveyor technology for production connection and dispatch readiness.

The advantages:

- ◆ Gentle handling
- ◆ Multi-deep high volume storage
- ◆ Effective use of storage and retrieval devices through double, triple and quadruple formation
- ◆ Storage and transport for a wide range of LU sizes
- ◆ Storage and transport with or without sub-pallet
- ◆ Connected, custom-made conveyor technology



High-bay warehouses and extensions for Liebensteiner Kartonagen

Liebensteiner Kartonagen processes corrugated cardboard formats into finished packaging and has made an excellent name for itself in personalised packaging solutions. This family business offers a wide range of products, from attractively printed consumer goods packaging to heavy goods and transport packaging. At the Plößberg site, HÖRMANN Intralogistics maximised storage capacity with a new high-bay warehouse and its expansion, in addition to a new raw materials warehouse. With this cutting-edge, fully automated warehousing system, Liebensteiner is a real pioneer in the corrugated board sector.

High volume, low weight

Relatively large volumes means that a large number of pallets are produced in the process. The relatively low weight, in turn, allows for storage and stock removal of several loading units at the same time. Depending on size, between one and three pallets can be transported at the same time and stored or removed in a single pallet load carrier operation. This technology increases stacker crane performance by almost three times. The HiLIS Warehouse Management Control system controls and manages the process, which communicates with the Liebensteiner HOST system via an interface. Using sophisticated storage strategies, HiLIS calculates the storage location in order to optimise SRM travel times, weight distribution across all aisles and high-level storage utilisation. The logistical master-stroke in all this is filling truck shipping routes in such a way that the material flows from all warehouses converge there in almost perfect synchrony.

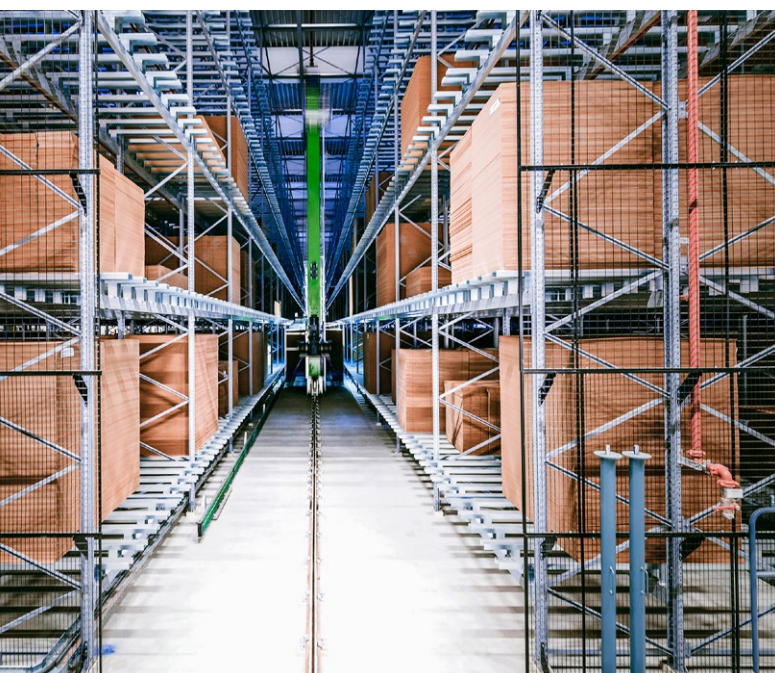
Highlights

New high-bay warehouse build and extension

- ◆ 5-aisle high-bay warehouse: 273 x 46 x 33 m (L x W x H)
- ◆ 14 levels with 52,000 slots
- ◆ 5 stacker cranes in single-mast configuration
- ◆ Flexible, up to triple-deep storage of pallets of different sizes
- ◆ Maximum flexibility in terms of the possibility of storing a wide variety of loading unit sizes with up to 3 sub-pallets
- ◆ Use of roller and plastic chain conveyors for gentle pallet transport
- ◆ Retrofitting of existing high-bay warehouse and shipping hall with connection to new areas
- ◆ Max. size of loading units 2,800 x 2,200 mm with up to 3 sub-pallets
- ◆ Single, double and triple transport
- ◆ Installation of a new warehouse management system with integration of the existing plant components

New build high-bay warehouse for unsecured load and palletless format goods

- ◆ 3-aisle high-bay warehouse: 97 x 25 x 13 m (L x W x H)
- ◆ Max. load dimensions: 3.05 x 2.5 x 1.9 m (L x W x H)
- ◆ Max. load weight: 2 t
- ◆ 3 stacker cranes, each with 8 telescopic forks
- ◆ Storage/retrieval performance: 79 LU per hour
- ◆ High storage capacity with minimal footprint
- ◆ Flexible rack assignment
- ◆ Palletless and unsecured transport and storage
- ◆ Just-in-time delivery for processing
- ◆ Storage capacity up to 1.5 million m²



Automatic high-bay warehouses for corrugated board at Progroup

With high-tech systems among the fastest in the world, Progroup produces corrugated board formats as its core business. In-house paper production and service companies provide process optimisation in six Central European countries. Rapidly expanding and highly specialized, Progroup has been working with HÖRMANN Intralogistics for many years to implement future-oriented intralogistics concepts.

Automated high-bay channel storage in Schüttorf, D

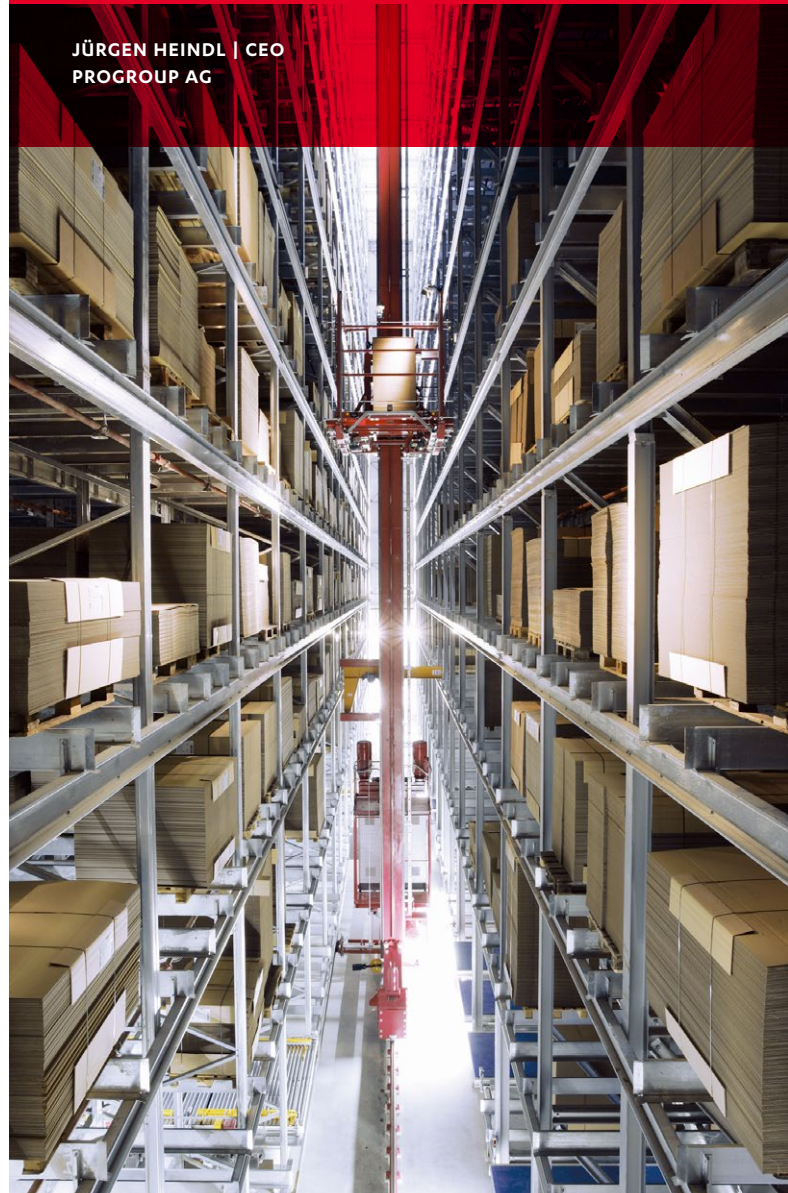
In Schüttorf/Lower Saxony, Progroup once built the largest and most modern corrugated sheetboard plant in Europe. HÖRMANN Intralogistics installed a high-bay warehouse with a buffer function between corrugated board production and shipping. The stacked corrugated cardboard produced on the corrugator is immediately removed, placed on up to three sub-pallets depending on the format, load-secured and temporarily stored in the high-bay warehouse. Depending on the specified retrieval date and order assignment, HiLIS decides where the load is stored.

Highlights

- ◆ 3-aisle high-bay channel warehouse with 13 levels and 13,000 slots
- ◆ 3 highly dynamic stacker cranes in single-mast configuration with lifting speeds of up to 2 m/s and variable acceleration values
- ◆ Automatic handling of almost all stack dimensions (max. dimensions of 2.5 x 1.8 x 2.2 m, with max. 3 sub-pallets or palletless)
- ◆ Special channel vehicles for lengthwise or crosswise corrugated board stack storage
- ◆ Intelligent pairing strategies with the HiLIS Warehouse Management System
- ◆ Logical warehouse quadrant management to optimize performance
- ◆ Management and stack fine positioning in channel for optimal volume usage
- ◆ Shortest availability times and flexible loading of approx. 100 trucks per day
- ◆ Storage/retrieval performance of 120/150 units per hour
- ◆ Operating time of 24 hours/day and 7 days/week

“Working with HÖRMANN Intralogistics, we’ve implemented a fully automatic high-bay warehouse with a direct on-line connection to the corrugated board system for the very first time in the corrugated board sector. This is how a ground-breaking, consistently fully automated intralogistics concept was created, from corrugated board production to intermediate buffering in the HBW and truck loading.”

JÜRGEN HEINDL | CEO
PROGROUP AG



Automated high-bay channel storage in Offenbach, D

At the Progroup plant in Offenbach, a state-of-the-art corrugated sheetboard plant for the production of heavy corrugated board was built in a record-breaking time of just nine months. To ensure the greatest possible flexibility in terms of machine utilisation and waste-optimized production, we also decided on a three-aisle high-bay warehouse using channel technology.

Highlights

- ◆ 3-aisle high-bay channel storage: 60 x 41 x 34.5 m (L x W x H)
- ◆ Highly dynamic stacker cranes with 2 channel vehicles for large formats with lifting speeds of up to 2.0 m/s
- ◆ Camera-based fine positioning system with teach-in function
- ◆ Management and stack fine positioning in channel for optimal volume usage
- ◆ Storage of formats from 1.2 x 0.8 m to 4.2 x 2.5 m
- ◆ Large format stack placing on up to 9 sub-pallets

Automatic high-bay channel storage in Strykow, PL

At Progroup's Strykow plant, HÖRMANN Intralogistics set up a high-bay warehouse using channel technology as a buffer between corrugated board production and shipping.

Highlights

- ◆ aisle high-bay channel warehouse with 13,000 storage spaces
- ◆ 3 highly dynamic stacker cranes
- ◆ Special channel vehicle for transport with up to 3 sub-pallets or palletless
- ◆ Camera-based compartment fine positioning and teach-in function
- ◆ Handling and storage for various formats with and without sub-pallets
- ◆ Storage/retrieval performance 120/150 units per hour
- ◆ Average storage time less than 24 hours
- ◆ Direct stack loading from conveyor to trucks

Automated high-bay warehouse in Ellesmere Port, UK

A special feature of the intralogistics concept at Progroup's Ellesmere Port plant is the combination of strapped corrugated board formats on pallets and unstrapped corrugated board formats without sub-pallet. Different types of compartments in the high-bay warehouse enable fully flexible, volume-optimized assignment with packaging units in the widest range of combinations.

Highlights

- ◆ 4-aisle high-bay warehouse: 96.7 x 48.2 x 33 m (L x W x H)
- ◆ 4 stacker cranes in 2-mast configuration
- ◆ 2 SRM with 6 telescopic forks
- ◆ 2 SRM with 3 telescopic forks
- ◆ Slot capacity approx. 14,400 pallets
- ◆ Transport and storage for various formats with and without sub-pallets
- ◆ Camera-based compartment fine positioning
- ◆ Intelligent, volume-optimised storage with HiLIS

Automated high-bay warehouse in Eisfeld/Thuringia, D

Highlights

- ◆ 3-aisle high-bay warehouse: 89.9 x 37.1 x 35 m (L x W x H)
- ◆ 2 stacker cranes with 6 telescopic forks
- ◆ 1 stacker crane with 3 telescopic forks
- ◆ Slot capacity approx. 10,500 pallets
- ◆ Transport and storage of different formats with and without sub-pallets
- ◆ Intelligent, volume-optimised storage with HiLIS
- ◆ Camera-based compartment fine positioning



„Tailored to our individual requirements, HiLIS, the warehouse management system by HÖRMANN Intralogistics, guarantees maximum flexibility and transparency.“

MATHIAS KUNERT | SHAREHOLDER AND MANAGING DIRECTOR
KUNERT WELLPAPPE BAD NEUSTADT GMBH



Automatic channel storage for large and small format loading units at Kunert Wellpappe

Kunert Wellpappe Bad Neustadt GmbH & Co.KG belongs to the family-run Kunert Group. A new automatic high-bay warehouse was built at the Bad Neustadt location to create space for production expansions and to meet the changing customer demand for smaller order quantities, shorter lead times and efficient stock control.

Sophisticated strategies for storing and transporting a wide variety of packaging units

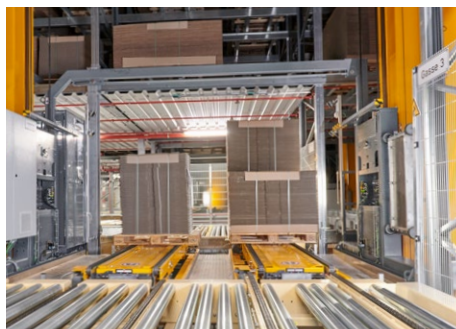
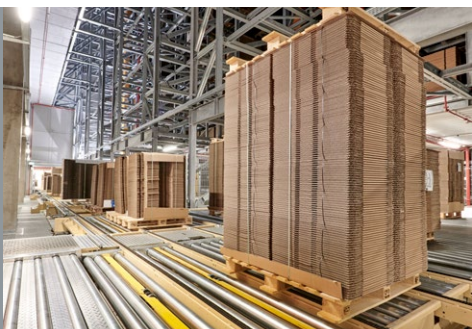
The special challenge in the detailed planning and implementation of the new channel storage system at Kunert Wellpappe concerned the very different formats and the large-format packaging units with up to six sub-pallets. In addition to transporting the variety of packaging units on a special conveyor, a sophisticated compartment detail was needed in order to allow for the flexible, optimised use of large compartments. At 42 m, the high-bay warehouse was also highly unusual.

Multi-deep storage with up to two channel vehicles per stacker crane (SRM)

For storage in the new channel storage, the packing units are precisely positioned at the infeed points aided by a light grid. The two-mast stacker cranes are equipped with chain conveyors and channel vehicles. In two aisles of the warehouse, the SRMs work with one channel vehicle each, in the other two aisles with two channel vehicles each, to handle the transport of large pallets. The channel vehicles are battery-operated and are charged during operation on the SRM. The storage and retrieval machine picks up the packing unit across and stores it several times deep in the storage channels aided by the channel vehicles.

Highlights

- ◆ 4-aisle high-bay warehouse in silo construction with multiple-deep storage
- ◆ Dimensions: 84 x 46 x 42 m (L x W x H)
- ◆ 19,000 pallet spaces
- ◆ 2 aisles for max. load dimensions 2,300 x 2,600 x 2,200 mm (L x W x H)
- ◆ 2 aisles for large formats with up to 6 Euro sub-pallets 3,000 x 2,600 x 2,200 mm (L x W x H)
- ◆ High dynamics thanks to anti-sway driving curve control and camera positioning
- ◆ Storage/retrieval performance: 160/190 pallets per hour
- ◆ HiLIS Warehouse Management System



6-aisle high-bay corrugated cardboard packaging warehouse for Soenen Golfkarton

Soenen Golfkarton NV is a state-of-the-art family business that produces corrugated cardboard printable in up to seven high-quality colours, and converts it into packaging in the same factory. The continuing growth of the company demanded a realignment of the internal logistics at the headquarters in Hooglede (Belgium). As general contractor, HÖRMANN Intralogistics implemented a very convincing, highly flexible logistics concept.

Transport and storage of a wide range of pallet types

The new 6-aisle high-bay warehouse is used to store corrugated board formats, finished corrugated board packaging and empty pallets. One of the most significant challenges of the high-bay warehouse concept was the very wide range of pallet types and sizes (1,200 x 800 to 1,800 x 2,350 mm (L x W), heights up to 2,200 mm) that had to be transported and stored. The resulting requirements for mechanical components, IT and control technology were extremely complex.

The production is connected via two conveyor lines, on which the pallets are centred, checked for contours and read via the RFID tag. In the sorting area, large-format pallets are channelled through, while smaller formats, which make up around 90% of the total production, are grouped into pairs. This almost doubles the storage and retrieval performance.

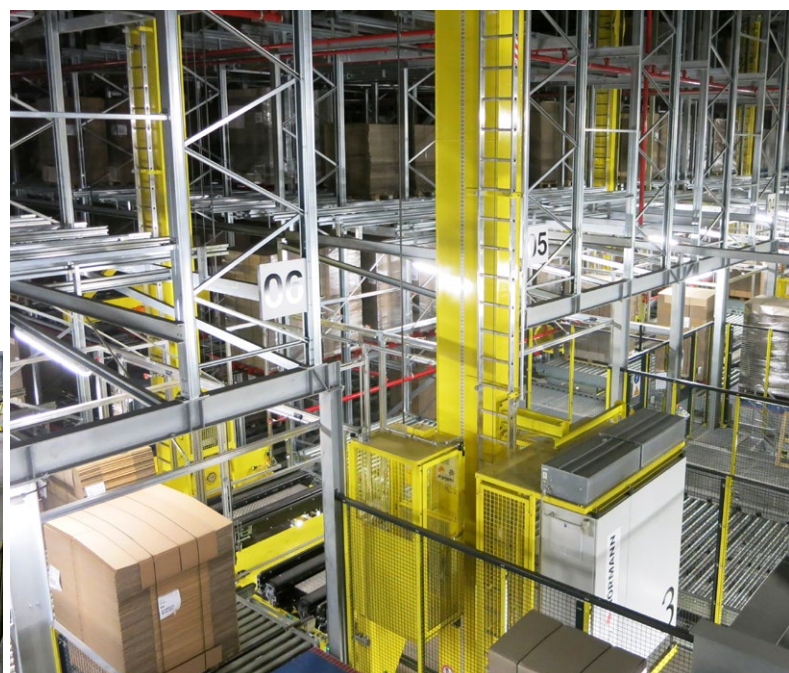
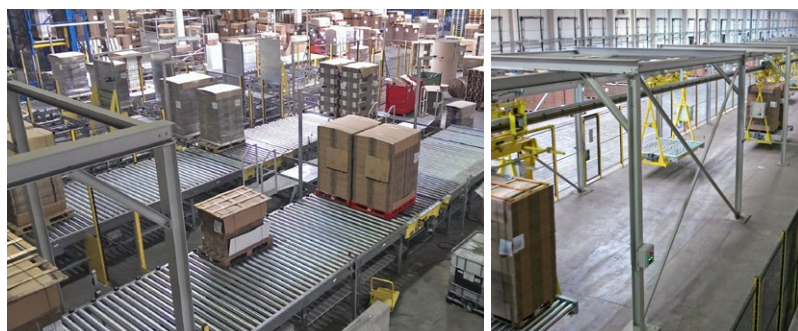
The sorted pallets are transported by an electric monorail (EHB) toward the high-bay warehouse, where they are delivered to one of the six storage stubs. Each EMS hanger can hold a pair of pallets. The six aisles of the high-bay warehouse are each equipped with a highly dynamic stacker crane (SRM) with telescopic forks, capable of transporting up to two pairs (= four pallets) at the same time.

Pallet identification and tracking using RFID technology

The entire pallet identification and tracking in the logistics process is carried out using the latest RFID technology. The RFID tag is automatically attached to the delivered empty pallets. In production, the pallet and associated production order are "matched" by HiLIS. From here, the pallet is tracked via RFID until being loaded onto the truck. Each truck gate is equipped with an RFID gate, which recognizes every correctly loaded pallet and acknowledges that it has been loaded.

Highlights

- ◆ 6-aisle high-bay warehouse
- ◆ Dimensions: 212 x 71 x 37 m (L x W x H)
- ◆ Slot capacity: 59,000 pallets
- ◆ Storage/retrieval performance: 240/300 pallets per hour
- ◆ 6 stacker cranes
- ◆ Electronic monorail RFID technology
- ◆ HiLIS WMS
- ◆ Storage and transport of a wide variety of pallet types and sizes without sub-pallets
- ◆ Traceable data management
- ◆ Sequence-precise dispatch preparation



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