
Three stackers in the corrugator discharge area

Highly Automated Intralogistics for Different Formats: An All-In-One Solution on two levels for TRICOR

With its new building project in the industrial area Weeze/ Goch, TRICOR Packaging & Logistics AG expands its production capacities for heavy corrugated board and large-size packaging. Converting particularly large formats imposes high demands on the intralogistics infrastructure. At the same time, small formats and variable order combinations must be transported just as reliably. MINDA therefore designed the entire intralogistics system to comprise the full range of formats – from the smallest formats to formats with a width of 2,500mm and a length of up to 6,500mm.

MINDA supplies the complete intralogistics technology for the new plant, from the corrugator discharge to the infeed and discharge of the converting machines, the connection of two high-bay warehouses, up to the pallet securing line, and the dispatch area.

Discharge from the Corrugator

The corrugator hall is the heart of the new plant. A special feature is the use of three stackers in the corrugator discharge area. The flexibility in the discharge of the format sizes supports the order variety by the combination of these stackers.

Block Multi-Stacker Behind the Corrugator

To optimise space utilisation in the high-bay warehouse, Minda has integrated a block multi-stacker behind the corrugator to stack several stacks on each other. This makes it possible to multiply part runs from the corrugator up to a maximum stack height of 2,200mm. This significantly reduces the number of required storage spaces in the high-bay warehouse, thereby increasing the efficiency of warehouse logistics.

Pallet Loading Station (BoP) Behind the Corrugator

In the corrugator hall, the stacks can be immediately positioned on pallets after the corrugated board has been produced. The pallet loading station (BoP) handles format sizes from 500 mm to 6500 mm.

Intralogistics Connection to Two High-Bay Warehouses

Minda supplied the entire conveyor technology, including control systems for infeed and discharge for both high-bay warehouses.


Block multi-stacker

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Infeed for high-bay warehouse – stack positioning with pusher

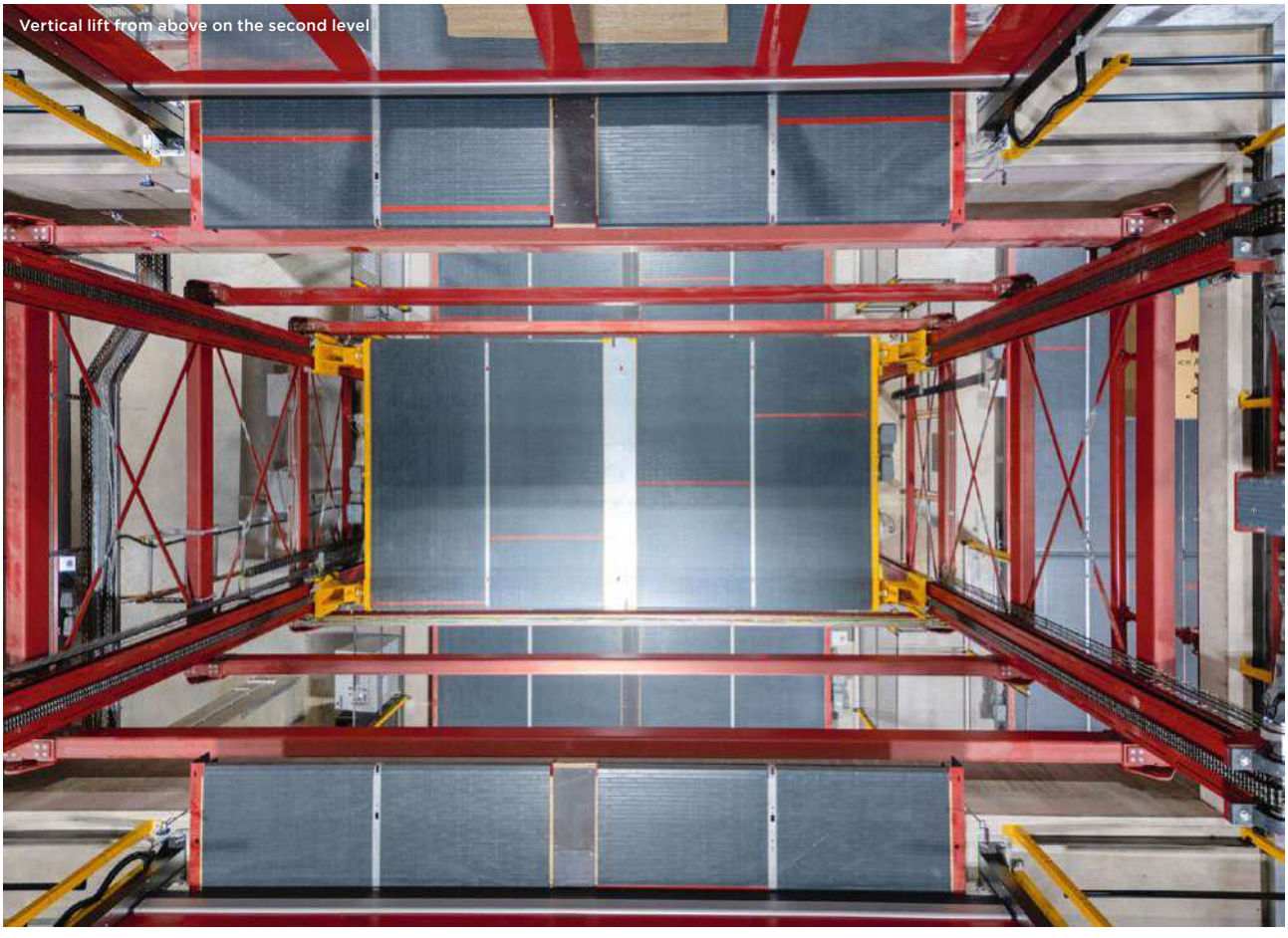
The plant layout includes a high-bay warehouse for raw and semi-finished goods and another high-bay warehouse for finished goods.

Storage in the high-bay warehouse is possible up to a width of 5,500mm. The intralogistics process in the pre-zone is particularly decisive for high efficiency. The defined interfaces set maximum requirements to ensure consistent automation. The stacks are positioned by Minda components with an accuracy of 10mm. Up to four loading units can be prepared for discharge at the same time and assembled to a stack by a pusher. The storage and retrieval machine then takes these precisely aligned loading units directly to the storage location.

Converting Machines Connected on Two Levels

A special highlight of the new plant is the connection of converting machines on a second level – beside six converting machines on the ground floor. Two vertical lifts continuously connect the ground and upper floor for this purpose. They transport finished and semi-finished goods between the levels, and provide bridging functions – for example, as a return line.

The stacks are fed for conversion on the second level either via one of the vertical lifts or via the second high-bay warehouse. This is connected to the second level via two separate feeding lines. The storage and retrieval machines


Vertical lift from above on the second level

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located in the corresponding aisle of the high-bay warehouse can both deliver to the discharge to the second level, leading to high demands for flexibility of the intralogistics located there.

Pallet Securing Line with Two Pallet Loading Stations (BoP)

In the pallet securing line, the stacks are palletised fully automatically using two pallet loading stations (BoP). The system automatically detects whether a stack has already been fed to the line with a pallet or whether the stack still needs to be positioned on a pallet. The loading stations are supplied via an integrated empty pallet storage with pallet inspection system. The empty pallets are fed fully automatically to both the loading stations in the conversion hall and the loading station in the corrugator hall.

Continuous Digitalisation and a Wide Range of Interfaces

The intelligent control and visualisation software Minda MoveIT ensures that each stack can always be clearly identified. Continuous material flow tracking always provides customers with complete transparency.

In addition, statistical evaluations are available, such as how many blocks are transported to which machine, what performance data is available and where potential wear and tear hotspots appear. These key figures provide Tricor with valuable information on the use of individual converting machines, support predictive maintenance, and enable optimised production planning.

With Minda MoveIT, Tricor relies on consistent visualisation as well as on an intelligent control system that contributes to increased production efficiency thanks to comprehensive analysis.

Complete Solution on Two Levels

For the equipment of its new plant, Tricor decided on Minda as complete provider of intralogistics from a single source. Together, they developed a layout with intelligent material flow that is particularly space-saving and considers the large formats that are to be transported through the production halls in different orientations. Tricor benefits from a single contact for the entire planning and execution of the project.

Integrating the second level with converting machines transforms the system into a three-dimensional structure: rather than relying solely on horizontal material flow, this vertically networked production layout optimises space utilisation, reduces throughput times, and supports a high degree of order complexity. This architecture exemplifies smart intralogistics in the corrugated board industry.

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