

Level Up Board Plants: the Success Story of DF Logistic Systems in Automated Vertical Warehouses

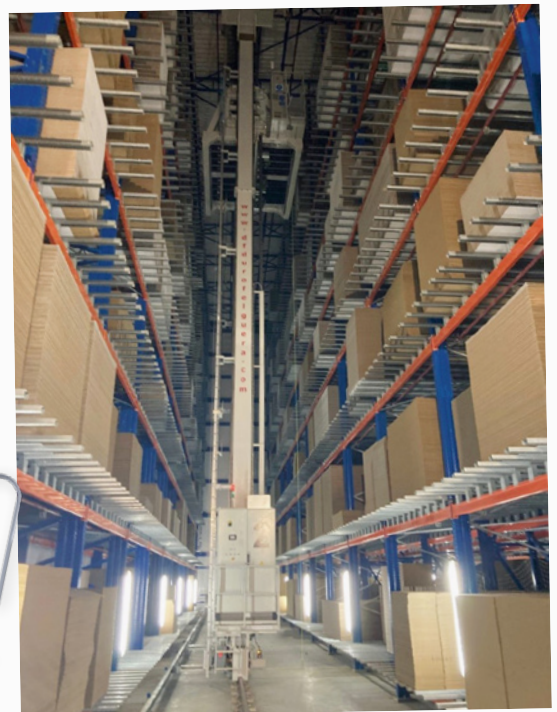
In the constantly evolving landscape of corrugated board production, DF Logistic Systems has emerged as a driving force, reshaping the way raw materials, intermediate products and finished goods are handled. With over 30 years history of successful implementations for industry leaders such as Saica Pack, DS Smith, International Paper and others, DF Logistic Systems is at the forefront of innovation. This success story is intimately interwoven with the integration of automated vertical storage and advanced conveyor systems, revolutionising the industry from corrugator, through WIP, pre-feeders,

stackers, palletisers and conveyor systems, to finished goods warehouse and shipping.

An Industry Overview

The corrugated business plays a dynamic and vital role in the packaging industry, serving a variety of applications in various sectors. Its core Logistics operates in three fundamental stages: the handling of raw materials (paper reels), the handling of

intermediate products (corrugated board sheets) and the production of finished products through a series of processes including packaging, strapping, stretch wrapping, pallet folding and palletising. DF Logistic Systems has not only optimised these stages, but also seamlessly integrated stacker cranes and advanced systems to improve efficiency and streamline the entire production cycle.



■ Raw Material Handling (paper reels and coils):

At an early stage, DF Logistic Systems revolutionises the storage of raw materials, namely coils, with the deployment of state-of-the-art automated vertical warehouses. At the heart of this innovation are the stacker cranes, a hallmark of DF's commitment to efficiency. These towering technological geniuses manoeuvre seamlessly within the vertical warehouse, precisely placing coils at optimum density. The result is an efficient use of space that surpasses traditional storage methods. While conveyor systems facilitate the initial flow of coils from the corrugator, the stacker cranes are responsible for facilitating retrieval, minimising downtime and significantly improving the overall efficiency of the production process.

■ Management of Intermediate Products (corrugated sheets):

WIP sheet-stacks palletising and labelling process elimination, managing a high diversity of board/order sizes and formats. As the corrugated sheets move through the WIP phase, the conveyor systems work in tandem with the advanced stacker cranes. These cranes operate with precision within the automated vertical warehouses, providing a systematic and intelligent approach to storing and retrieving corrugated sheets. Whether the sheets are palletised or unpalletised, the integration of the stacker cranes ensures fast and reliable access for downstream processing. This harmonious collaboration between conveyors and stacker cranes establishes an uninterrupted production flow, contributing significantly to operational excellence avoiding bottlenecks.

■ Finished Goods:

in the final stage, finished products undergo various processes, such as packaging, strapping, bundling, pallet folding and palletising. DF Logistic Systems' automated vertical storage solutions seamlessly integrate and connect every step of this process, ensuring a cohesive and efficient workflow. However, it is the automated vertical warehouses and their automated stacker cranes that play a key role in this phase. As the guardians of the finished products, the stacker cranes store the products efficiently and safely until they are ready for dispatch. This not only ensures a cohesive and efficient workflow, but also guarantees the preservation of product quality during the storage phase, safeguarding the end products with precision and reliability.



Luis Miguel Barrientos, Sales Manager, DF Logistic Systems, says, “DF Logistic Systems’ automated vertical warehouses, empowered by advanced stacker cranes, redefine the handling of raw materials, intermediate products, and finished goods in corrugated board plants. The integration of these technologies underscores our commitment to providing not just solutions but innovations that elevate the standards of efficiency and quality in the industry.”

■ **Optimised Space Utilisation:**

DF Logistic Systems has been instrumental in introducing innovative solutions that optimise space utilisation in corrugated plants. By implementing high-density vertical storage systems, these warehouses maximise storage capacity without compromising accessibility. This strategic use of space improves efficiency while accommodating the diverse storage needs of corrugated board plants.

■ **Seamless Integration of WMS and WCS:** capability of highly improving the information, traceability and material flow control. The incorporation of Warehouse Management Systems (WMS) and Warehouse Control Systems (WCS) has brought about a radical change in DF Logistic Systems’ approach. This integration ensures harmonious coordination between the various warehouse processes. The intelligent combination of WMS and WCS ensures efficient inventory management and streamlined operations, providing corrugated board

plants with a comprehensive solution to optimise their warehouse activities and achieve operational excellence.

DF Warehouse Management System (WMS) can also integrate in the same system the management of additional either conventional or automated storages (non standard loads, tools – rotary dies/printing plates).

■ **Improve Productivity and Quality Standards:** the opportunity to reduce the impact of human factor in the production centre performance regarding its different processes (handling, storage, traceability, quality and information control processes). Personnel currently allocated to handling tasks that can be promoted to higher value add tasks, for example, (material waste reduction, quality control, efficiency improvement, etc.). Embracing automation through the implementation of automated vertical warehouses not only improves productivity, but also maintains high quality standards within corrugated plants. DF Logistic Systems’ expertise in developing customised solutions ensures that automation is seamlessly integrated into existing workflows, resulting in improved overall operational efficiency and customer satisfaction.



■ **Sustainable Storage Practices:** the incorporation of stacker cranes in DF Logistic Systems’ automated vertical warehouses brings a special advantage that resonates deeply with the intrinsic sustainability of the industry. By optimising space utilisation, these stacker cranes directly contribute to reducing the overall footprint of the storage facility. This eco-friendly approach aligns perfectly with the sustainability goals of corrugated board plants, reflecting a commitment to responsible resource management. Lowering the amount of raw material waste during manipulation, by eliminating human error and enabling longer runs in the corrugator. As a result, the stacker cranes not only improve efficiency, but also raise the environmental awareness of the entire production process, moving towards a greener and more sustainable future for the corrugated industry.

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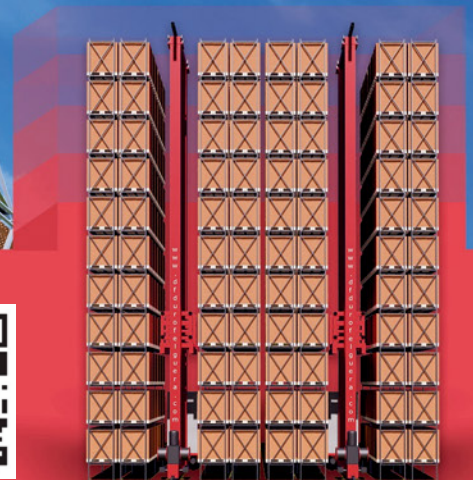
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Automated Vertical Storage Solutions for the Corrugated board industry: Paper reels, WIP & Finished goods.

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- Solves plant space constraints.
- Improves customer service efficiency.



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