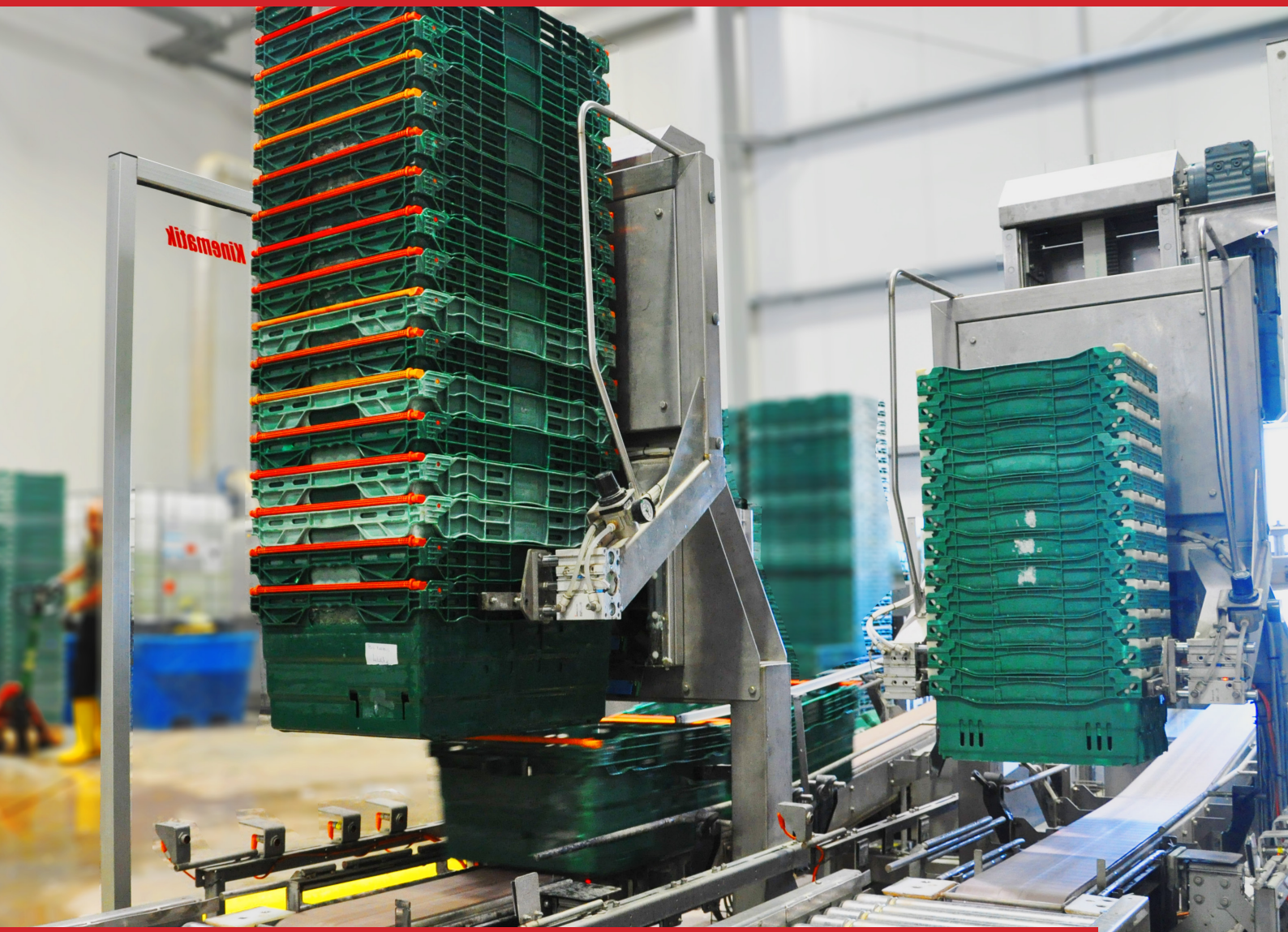
Kinematik

INTRALOGISTICS



## Case Study

# Crate Stacking System

**AB VASILOPOULOS / DELHAIZE GROUP**
Inofyta (GR)

## AB Vasilopoulos / Delhaize Group

AB Vasilopoulos is active in food retailing and is one of the leading food retailers in Greece.

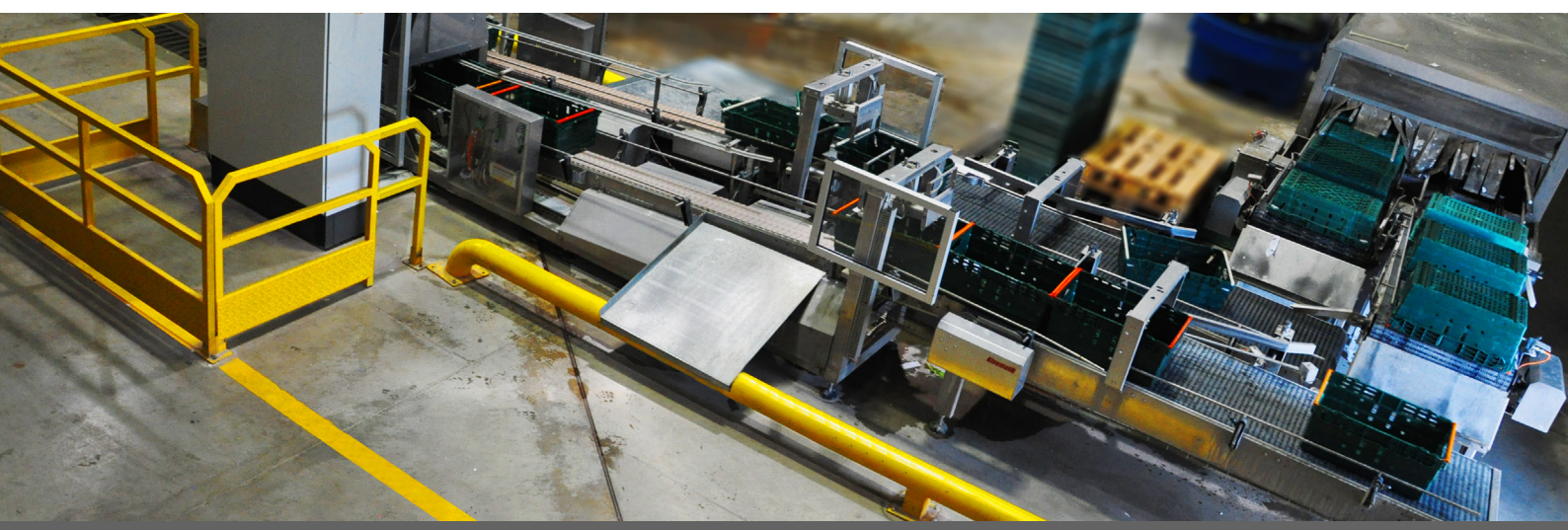
AB handles daily a plethora of crates for the distribution of fruits and vegetables. The washing of the crates after their use takes place in the Central Warehouse Inofita with a continuous flow crate washing machine. Kinematik manufactured a custom system for stacking the washed crates, with tipping-over stations, crate handle bars position check and reposition stations, reject stations and crate stacking stations. The system can handle three types of crates with different dimensions.

## The Solution

- Crate tipping mechanisms
- Checking and repositioning crate handle bars mechanisms
- Crates rejection mechanisms
- Stacking crates mechanisms
- Roller conveyors for crate stacks
- Crate stacks palletizing arm
- Engineering, Automation and Integration

## Description of Operation

The crates exit the washing machine from two lines. At the exit of each line there are chain conveyor belts receiving the crates from the washing machine. Then the crates are tipped over with a controlled drop on the modular conveyor belt, so that the crates return to their normal standing-up position. They then pass the control check and the repositioning of their handle bars, as the bars should be in the open position for their subsequent stacking. If the handle bars despite their reposition are not in the open position, then a rejection mechanism rejects the crates. After checking the handle bars, the crates enter the stacking mechanism, to be stacked. The positions of the handle bars is checked again with their entry into the stacking position. Upon completion, each stack is driven to an accumulation roller conveyor, with a storage capacity of as many as four or eight crate stacks. The columns received from both lines through arm hydraulic assisted with special gripper constructed for receiving all kinds of crates and placed on pallets.



## Compact and Versatile

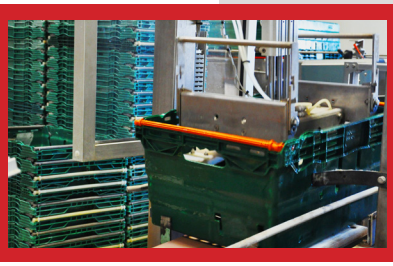
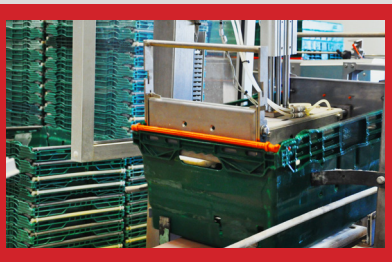
The system has the potential to handle crates of different sizes, in all points: tipping, handles check, rejection, stacking.

The two lines are independent and if needed allow operation of only one line, making the system failsafe. Moreover, each line can manage any kind of crate type independently from the other.

The system requires minimal installation space, while providing increased flexibility, consisting of modules assembled easily.






## Intelligent

The crates conveyor system have the ability to accumulate crates at specific positions, in order not to block the output of the washing machine.

Also the crate stacking system controls the operation of the washing machine and therefore avoid unwanted situations, whenever the system is not able to receive any crates.

Moreover, it has the ability to control and correct the positions of the handle bars of the crates, while recognizing if the opening was successful. If this fails, the crate is rejected.

The stacking mechanism rechecks the position of the bars to avoid blockages. If, however, the stacking mechanisms sense increased resistance on any stacking crate, it recognizes it immediately and is lifted releasing the faulty crate.

## Simple to Use

The operation of the system is done via touch screen. The display mode, the errors and warnings, allowing immediate troubleshooting.

Changing the type of crates is fast, as the operator need not only to choose the type of crates to palletize for each line and position the crate guides to the selected positions for each type of crate.

## Safety

Personnel and equipment are protected by special panels and safety relays actuated pushbutton emergency.

## Features

Thanks to the use of inverters for driving all gearmotors, being fully guided by linear guides in all movements and stacker using absolute encoder for lifting, ensures smooth movements and gentle handling of crates.

## Reliability & Minimized Maintenance

The system consists of top quality materials and equipment, while being specifically designed to require the minimum possible maintenance. The wet operating environment for both materials (stainless steel) and for equipment (IP67) has been taken into account. Based on the easy to assemble and troubleshoot philosophy, all the electrical connections are pluggable.



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