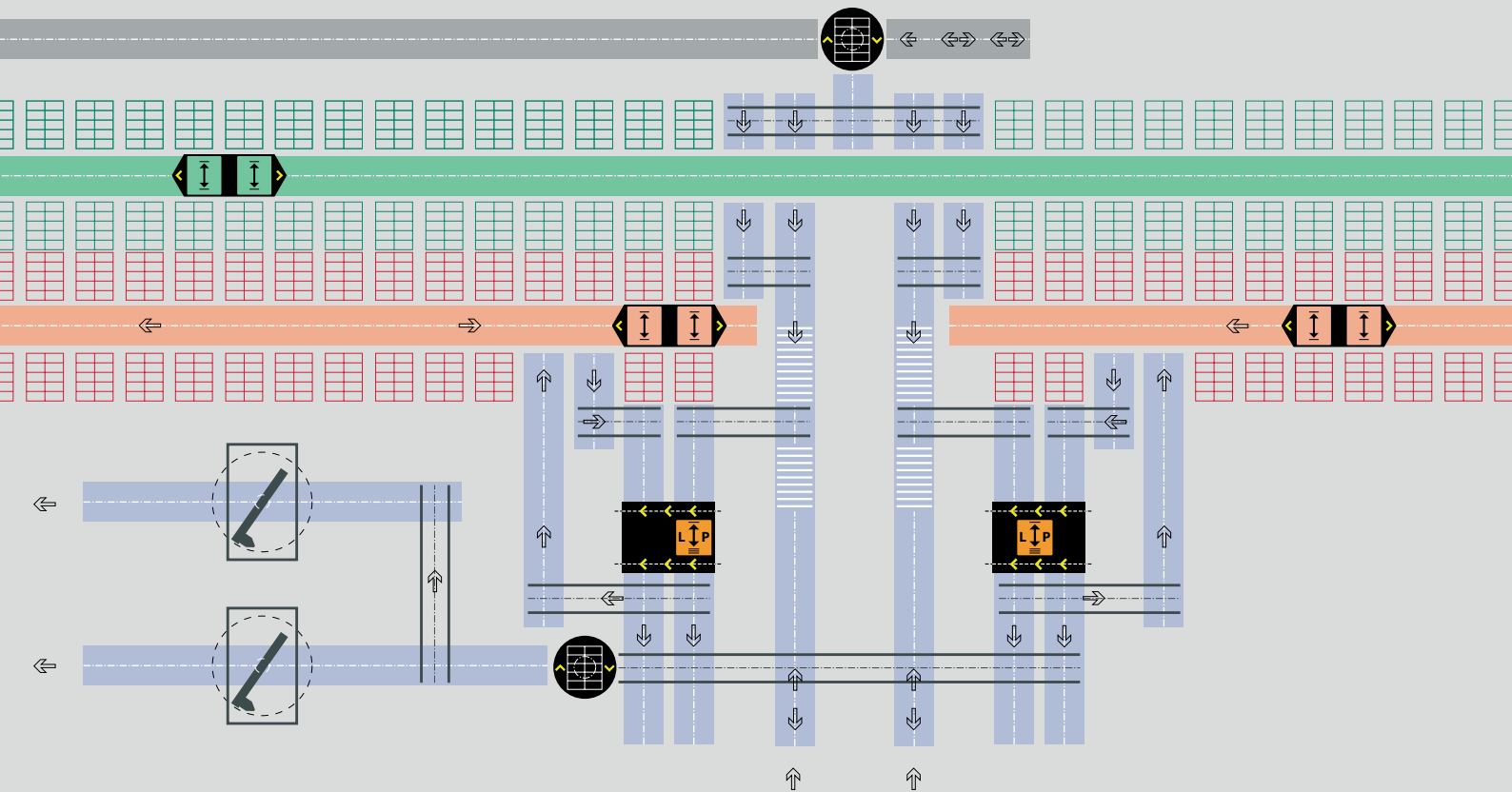


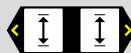
KUEHNE+NAGEL 

# Pick of the pallets





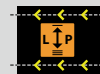
Stretch wrapper



Transfer car



Pallet turning tables



LayerPicker

- Grey = Transport of pallets to the layer-picking hall
- Green = Source pallets line (in-bound sequencer)
- Red = Customer pallets line (during order picking)
- Blue = Pallet conveyors

## The Univeyor LayerPicker® brings ground-breaking innovation to Kuehne+Nagel – a leading player in warehouse logistics

Food retailers in the Netherlands today bear witness to a revolution in dry goods distribution. An area where innovation is traditionally most noticeable by its absence, warehousing has received a historical lift at the Kuehne+Nagel site in Veghel - Europe's largest distribution centre for dry food products. Patented technology from Univeyor has provided the behind-the-scenes boost that Kuehne+Nagel and its customers now value as outstanding, cost-saving performance up front.



The Univeyor LayerPicker® has introduced a new standard for automated warehouse layer-picking. Flexible, reliable and responsible for cutting away man-years of intensive manual labour, it has fast attracted international attention since its installation - so much so that, in 2004, the Kuehne+Nagel site at Veghel won an "Oscar" as best European distribution platform from the French magazine "Le journal de la logistique". The award was the sixth logistics prize won by a Univeyor customer since 2000.

The LayerPicker is the central element in a system for mixed palletising and buffer storage of customer pallets, designed by Univeyor and Kuehne+Nagel in close cooperation. Here it rises successfully to a challenge of proportions - automating the task of picking layers of vastly diverse food products directly from source pallets and transferring them to customer pallets, regardless of shape, packaging type and stacking pattern.

Manpower costs have fallen dramatically since the system was introduced. But Kuehne+Nagel has not reserved the financial benefits for itself. Unilever Best Foods and other high-profile customers have gained from a 20% price reduction on order picking. And still, even taking payback time into consideration, the system continues to make profitable business sense.



By choosing LayerPicker, Kuehne+Nagel has enhanced its reputation as a leading, forward-thinking company - the initiator of a landmark in warehouse innovation.

A transfer car transports source pallets to LayerPicker in the right sequence for order picking.



From the high bay store, pallets are taken to the picking hall and transferred to the in-bound pallet storage sequencer.



LayerPicker in operation.

## The design challenge

"We collected five full truckloads of the most difficult products we could find and sent them to Univeyor in Denmark - products on trays, bottles with long necks, flat products, shoe-box type packages. A week later we visited Denmark, and they proved it was possible to lift around 90% of our products."

General manager of Kuehne+Nagel in Veghel, Tim Beckmann describes how his team became convinced that Univeyor could live up to its claim of being able to lift almost any product from any pallet.



The desire to automate the highly labour-intensive task of layer-picking had sent Kuehne+Nagel on a mission to investigate the possibilities. With 60-70 people employed simply to pick ordered goods and stack them onto customer pallets - twice that number in the high season around Christmas - Tim Beckmann was looking to make operations in the 125,000m<sup>2</sup> distribution centre faster and more cost-effective with a significantly reduced risk of error and product damage.

"Until we came into contact with Univeyor, innovation was difficult, as there were no other good solutions for layer-picking that would work with most products," says Tim Beckmann.

Because an automated warehouse technique for lifting products from one pallet to another was, at that point, a unique proposition, Kuehne+Nagel's engineers set to work to incorporate LayerPicker in a complex transport system. Close teamwork with Univeyor led to the final, tailor-made result - a system that can bring pallets to the LayerPicker in the right sequence for layers to be picked for individual customer orders. In all, the finished system can cater for up to 900 rainbow pallets a day.

## Patented LayerPicker technology

Handling whole layers of any product with a flat bottom surface, LayerPicker is a model of efficiency, leading edge ergonomics and intelligent control.

The working principle is based on a centrifugal fan that creates a vacuum chamber inside the machine head. Height adjustable and inflatable side skirts are then gently pressed against the layer, effectively sealing the vacuum chamber. In this way, atmospheric pressure from underneath pushes the products against the suction plate, enabling lifting to take place - safely and reliably. Even layers with gaps can be raised efficiently due to valves that automatically close when the air stream exceeds specified limits.

A touch-screen panel makes it easy to supervise LayerPicker functions, check alarms and verify new products and layer patterns. Optimum execution of customer orders is ensured by the PC control system, which has a direct link to the warehouse management system (WMS). In this way, order status can be precisely tracked.



The two LayerPickers can process up to 900 rainbow pallets a day, replacing 40-50 full-time employees.



Once customer pallets are complete, they are conveyed to the stretch wrapper, labelled and dispatched.

## Functional system design

The mixed palletising and buffer storage system at Veghel employs two LayerPicker machines, each connected to a so-called distribution street - the buffer stores for customer pallets in process. Transfer cars transport the pallets between the distribution street and the LayerPickers.

Before order picking can begin, the source pallets required for a batch of customer orders are brought out of bulk storage, checked, unwrapped and, via the sequencing buffer, conveyed in the right order to LayerPicker. Customer pallets can then be transferred to LayerPicker and automatically loaded with one or more layers of the relevant articles.



Using the weight and layer size of each article, the WMS divides the articles into stacking classes and determines the palletising sequence of each customer order, always starting with the heaviest and largest layer first. To optimise this process, Kuehne+Nagel developed an extra WMS module to introduce "layer" as an entity in the automatic system, alongside traditional boxes and pallets. This allows customer orders to be precisely translated into instructions for the layer-picking machine.

## Profitable performance

The layer-picking revolution has brought a catalogue of benefits to the Kuehne+Nagel distribution centre. Manual operations performed by some 40-50 full-time employees have been successfully automated. Even during the high-season rush, only a handful of extra staff is required to cope with the increased order volume - compared to the 50 or 60 temps required previously. Errors in mixed pallet orders and product damage have been all but eliminated.

"Our tracking and tracing possibilities have also been improved as we now know which box comes from which source pallet," Tim Beckmann adds.

Before implementing the system, Kuehne+Nagel invited Dutch retailers to an information session to explain the change in the supply chain - and how they could optimise their order pattern by ordering more products in full layer quantities. To secure the business during the layer-picking system's payback period, the logistics company asked its customers for longer contracts. In return, customers would benefit from a 20% price reduction.

"Our objective was to break even, reduce customer prices and become recognised as an innovative partner," says Tim Beckmann. "These objectives are met without any doubt."





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