



# Room for more.

Make better use  
of your space –  
with very narrow  
aisle trucks from  
Jungheinrich.

 **JUNGHEINRICH**

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# Efficiency starts with the layout.

## Very narrow aisle solutions for your warehouse setup.

Product ranges are expanding, but space remains limited. Many warehouses are now under intense pressure to maximise every square metre, while rising space costs are becoming a genuine barrier to growth. That is why choosing the right warehouse strategy matters more than ever.

### RETHINK THE SPACE YOU HAVE.

Where conventional warehouse concepts reach their limits, very narrow aisle solutions unlock new potential. High-density racking systems make optimum use of available height, creating significantly more pallet positions within the same footprint – without requiring any additional floor space. The benefits are wide-ranging: rental and energy costs fall, while emissions are reduced thanks to lower construction and energy demands. In this way, limited space becomes a real competitive advantage.

### An efficiency advantage over wide-aisle warehousing

**+28 %**

pallet positions

**-20 %**

rental and energy costs  
per pallet position

**-20 %**

CO<sub>2</sub> emissions per  
pallet position\*



\*Internal calculation based on construction-, energy- and operation-related emissions assuming a 25 % space saving. The figures are based on typical regional assumptions (e.g., the German electricity mix). Upstream emissions, such as those generated by the production and transport of the vehicles used, are not included.

# Safe operation across the board.

## Very narrow aisle trucks with modern personal protection systems.

Very narrow aisle trucks play a central role in modern warehouse logistics. They must move through the narrowest of aisles, provide direct access to every pallet, and store and retrieve loads at heights of up to 18 metres. Our trucks can be equipped with a wide range of features to support these tasks – with a strong focus on systems designed to enhance safety.

### REDUCE THE RISK OF ACCIDENTS BY UP TO 100%\*.

Our personal protection systems (PPS) can be integrated into all very narrow aisle (VNA) trucks – from high-rack order pickers to vertical order pickers. They detect obstacles automatically and bring the truck to a stop as soon as a hazard is identified. The systems also provide reliable protection outside the very narrow aisle and can be tailored precisely to your warehouse environment. In combination with inductive guidance, they deliver a significant increase in safety. We would be pleased to explain the additional benefits of these features in a personal consultation.

### The Jungheinrich VNA portfolio: Three classes. Three strengths.

## EKX



The high-rack order picker  
for demanding applications

## EKS



The specialist in efficient  
order picking

## EFX



The entry-level model  
for precise handling in  
confined spaces

\*with PPS activated, compared with a wide-aisle solution

# On target every time.

## Smooth operations with warehouseNAVIGATION.

Alongside safety, precision is crucial in very narrow aisle applications. Smooth processes depend on exact truck guidance, and even the smallest positioning errors can have a noticeable impact on efficiency.

**+25 %**  
throughput

### Optimise your warehouse movements with warehouseNAVIGATION.

Positioning assistance <small>(for regular and temporary staff)</small>	<b>+ approx. 15 %</b>
Automatic scans	<b>+ approx. 5 %</b> per scan (x2)
Precise, target-oriented navigation	<b>High process reliability</b>



Our VNA trucks are available with warehouseNAVIGATION, one of our key assistance systems. It guides trucks semi-automatically to the correct racking position, eliminating the need for manual scanning. This speeds up processes and reduces the risk of picking errors. The precision also delivers measurable financial benefits: in a typical two-shift operation, reducing the error rate from 0.3% to 0.1% can save up to €4,800 per truck per year\*. At the same time, increased process reliability enhances the service you provide to your customers.

**Fewer errors.  
Greater value.**

\*Based on a medium-sized warehouse in an EU country with 120,000 picks per year per truck

## EKX 410–516.

### Your edge at great heights.

The EKX series unlocks the full potential of your warehouse. These trucks combine transport and order picking in one intelligent man-up solution, with a clear view of every load. The auxiliary lift and elevating operator platform make order picking especially easy. In guided very narrow aisles, the trucks deliver maximum performance and handle loads at impressive heights.

#### THE RIGHT EKX SOLUTION FOR YOUR WAREHOUSE.

MODEL	410	412	514	516k	516
Max. lift height in mm	11,500	11,500	13,000	14,000	18,000
Capacity in kg	1,000	1,200	1,400	1,600	1,600
Travel speed in km/h	10.5	10.5	10.5	12	12

### ROOM FOR MORE EFFICIENCY.

The EKX models combine highly efficient motors with intelligent lightweight design. The result is a range of clear benefits: greater efficiency, sustainably lower operating costs and reduced emissions. At the same time, you gain more financial flexibility for investment in your business and your people.

#### Big savings. Even with average use.



**–600 to –1,200 kg\***

less CO<sub>2</sub> emissions per truck per year\*



**–400 to –800\***

lower electricity costs per truck per year\*



**25 %**

lower energy consumption than the market average

(according to the TÜV Süd-certified measurement method)

#### 80 volts. Maximum efficiency.



Our 80-volt lithium-ion battery is tailored to your requirements, delivers high energy efficiency and enables opportunity charging without the need for battery changes – ensuring consistent performance at a lower overall cost than previous battery generations.

\*Based on average German electricity costs and CO<sub>2</sub> emission factors

## ROOM FOR BETTER OUTPUT.

With their exceptionally high thrust speeds, the EKX models are proven to increase throughput – helping you unlock the full potential of every work cycle.

**0.5 m/s:**

the highest thrust  
speed on the market

> **+8% performance\***

> **+5,000**

pallet movements per year  
in two-shift operation

\*compared with the previous best-performing model series

## ROOM FOR FASTER PROCESSES.

The EKX models are equipped with state-of-the-art Auto-ID technology, enabling goods to be identified automatically via RFID or barcode. This speeds up your processes and significantly reduces errors during picking.

**Auto-ID** > **+3 sec** > **+3%**  
saved per work cycle performance\*

\*compared with trucks without Auto-ID



# EKS 310s/412s.

## Top performance in order picking.

The EKS series is built for efficient high-level order picking. It combines high pick performance with an ergonomic design. Developed specifically for very narrow aisles, the s-models offer higher travel speeds than the standard models – delivering maximum efficiency with every movement.

### THE RIGHT EKS SOLUTION FOR YOUR WAREHOUSE.

MODEL	310s	412s
Max. lift height in mm	7,000	12,500
Capacity in kg	1,000	1,200
Travel speed in km/h	11	12

## ROOM FOR GREATER COST-EFFICIENCY.

The EKS series reduces your operating costs over the long term, thanks to highly efficient motors and intelligent lightweight design. You benefit from lower energy consumption, reduced emissions and strong performance in very narrow aisles.



Highly efficient  
motors



# 22%

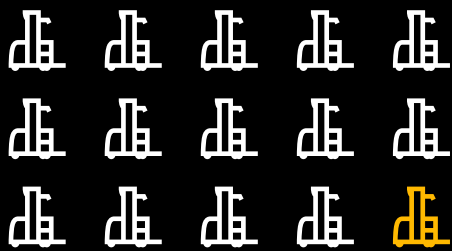
Intelligent  
lightweight design



lower energy  
consumption compared  
with all competitors

## ROOM FOR BETTER PERFORMANCE.

When it comes to speed and precision in very narrow aisles, the EKS sets new standards. Its seamless three-stage mast – a telescopic system – accelerates every lifting and lowering movement. With the highest lift speed on the market, the EKS models deliver real performance gains in everyday operation.



Save one truck in every  
**15** through **7%**  
higher performance.

## ROOM FOR GREATER COMFORT.

The three-stage DT mast not only boosts performance, but also ensures significantly smoother transitions during lifting and lowering – making operation noticeably more ergonomic.

**DT mast**



**60,000**

fewer transitions per year  
per truck in two-shift operation



# EFX 411/414.

## Setting the standard for flexibility.

The EFX series is the ideal entry point into very narrow aisle operation. As man-down trucks – with the operator platform remaining at ground level – these models offer outstanding versatility. They also impress with an intuitive operating concept.

### THE RIGHT EFX SOLUTION FOR YOUR WAREHOUSE.

MODEL	EFX 411	EFX 414
Max. lift height in mm	7,000	9,000
Capacity in kg	1,100	1,360
Travel speed in km/h	9	9



### ROOM FOR BETTER VISIBILITY.

The EFX is the only high-rack stacker in the world with a front seat and a laterally positioned mast. The result is a clear, unrestricted view of the forks, load, and travel route – a decisive advantage during storage and retrieval. It is the only solution on the market to offer this all-round visibility.



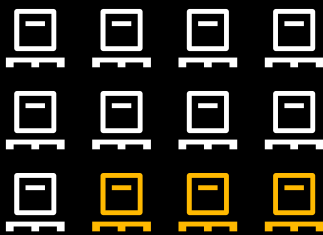
**Fewer accidents**



**Greater precision**

## ROOM FOR MORE STORAGE.

The EFX models make the most of every square metre of warehouse space. They enable highly space-efficient storage and use very narrow aisles more effectively than most trucks. In new warehouse designs, they can reduce storage space requirements by up to 22% compared with a wide-aisle solution, while lowering investment costs by around 10% – without compromising flexibility. The EFX also proves its strengths in existing warehouses.



Up to **33%** more pallet positions within the same footprint in existing warehouses\*

\*through higher storage density, compared with wide-aisle warehousing

## ROOM FOR MORE FLEXIBILITY.

The EFX moves safely between different warehouse areas, making it the ideal series for mixed layouts and changing requirements.

**Two operating areas.  
One series.**

**EFX**



**Narrow aisles**



**Wide aisles**



# Making the most of warehouse space for toys.

How Divertoys optimised their warehouse space with the EKX – and boosted efficiency.

## CHALLENGE

Divertoys, one of Brazil's leading toy manufacturers, was seeing strong growth in order volumes. But with that growth came increasing pressure on space. To support their expanding business, the company wanted to make more efficient use of their existing warehouse space and significantly increase capacity. They needed trucks that could move safely through narrow aisles, handle heavy loads with ease and set new standards in efficiency and ergonomics.

## SOLUTION

With Jungheinrich's ergonomic EKX high-rack order pickers, Divertoys was finally able to make full use of their warehouse space – unlocking the full potential of the available height. The company also integrated the **warehouseNAVIGATION** assistance system seamlessly into their warehouse management system. Since then, the system has guided the order pickers precisely to the correct racking position and reliably prevented operator errors. Today, Divertoys benefits from sustainably improved warehouse efficiency.

## Key benefits at a glance



**Three times the storage capacity** within the same footprint



**Error-free storage and retrieval** with warehouseNAVIGATION

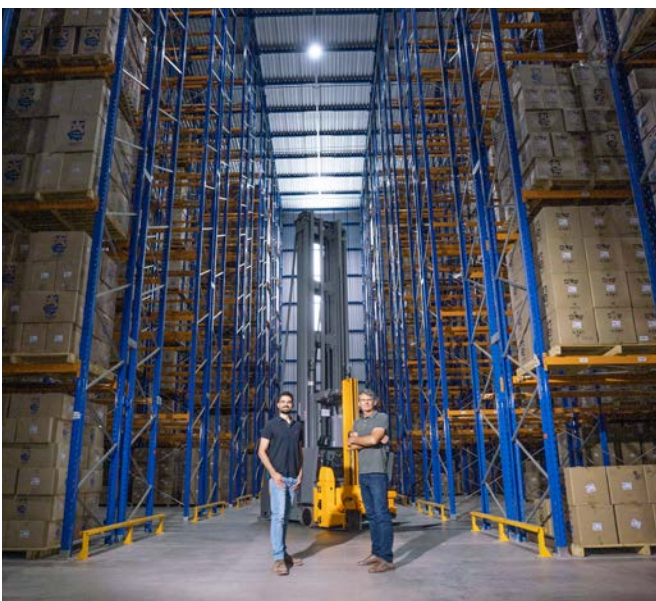


**Intuitive operation** and high user acceptance



At Divertoys, the EKKX moves precisely through narrow aisles with high racking as a man-up truck – supported by tailored assistance systems.

A strong partnership: Together, Jungheinrich and Divertoys are making warehouse logistics more efficient and more sustainable.



Reaching new heights: With the EKKX, Divertoys makes full use of their high-bay warehouse and creates space for a broader product range.

**ISO 9001**  
**ISO 14001**  
**ISO 50001**

The German production facilities  
in Norderstedt, Moosburg, Landsberg  
and Kaltenkirchen are certified.



Jungheinrich trucks  
conform to the European  
Safety Requirements.

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 **JUNGHEINRICH**

The Jungheinrich logo features a red upward-pointing arrow above the word 'JUNGHEINRICH' in a bold, black, sans-serif font.