



We deliver
the complete package.

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EFFICIENCY. SAFETY. SUSTAINABILITY.

For any logistics business, these are the key ingredients of operational success. As warehouses become ever-more complex, technology plays an increasingly pivotal role in creating safer, more sustainable environments that enable you to work faster and more productively.

But which technology?

In this guide, we'll explore three areas in which the latest technologies are transforming logistics operations.

- We'll explore how lithium-ion is transforming operational efficiency and organisational sustainability.
- We'll consider the potential of warehouse automation, and ask that most fundamental of questions for every logistics business: is it worth it?
- And we'll examine how technology is helping to drive up safety standards in warehouses and loading bays, helping to protect people and organisational reputations.



POWERED TO HANDLE THE HEAVY LIFTING: LITHIUM-ION DRIVES THE FUTURE OF LOGISTICS

What is it that every 3PL provider needs from its warehouse vehicles?

Less downtime: Always-on trucks can't be idle while waiting for batteries to charge or maintenance to take place

Real efficiency: Nothing harms your efficiency like truck downtime. So any battery driven solution needs to charge fast, and every charge needs to count.

Safe, reliable compliance: Whatever material handling solution you introduce to your warehouse, it needs to be safe, reliable and compliant with regulations.

Sustainability: Because every business is under pressure to reduce its carbon footprint and minimise its environmental impact.

Controlled costs: As long as you run gas-powered vehicles, you're at the mercy of energy markets and rising energy costs.



Why lithium-ion?

- **50% charge in just 30 mins**

In the logistics industry, efficiency is vital. Lithium-ion (Li-ion) provides powerful, long-lasting energy - perfect for fast-paced, high-demand operations:

- Longer battery life
- Batteries can be charged during breaks, reaching 50% capacity in 30 minutes
- No maintenance required
- Vehicles powered by Li-ion perform reliably even with a low charge
- Double speed stacking: Our Li-ion-powered double-deck pedestrian stackers can transport two Euro pallets simultaneously with a total capacity of up to two tons. In a sector like food and drink where speed matters more than ever, our stackers can complete internal transport tasks at double the speed.

Switch to Li-ion tech, and the typical logistics business saves time and money.

LI-ION
technology


Which lithium-ion?

Compared to other lithium chemistries and lead-acid batteries, **LiFePO₄ (lithium iron phosphate)** is the **safest choice for the 3PL sector**. LiFePO₄ is non-flammable, non-toxic, and free from harmful cobalt. It's the perfect choice for rechargeable batteries. Which is why it's Jungheinrich's choice for rechargeable batteries.

Lithium-ion supports your sustainability ambitions

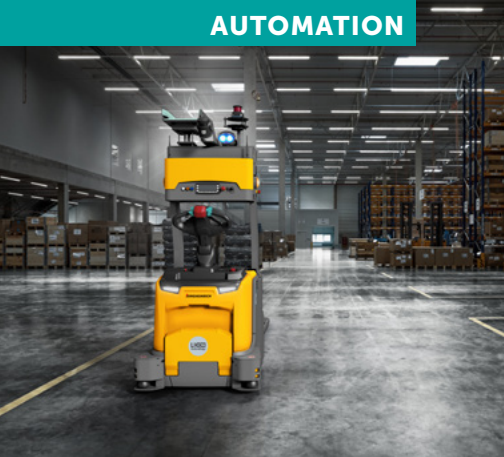
- Reduce CO₂e emissions by 21%
- 95% recyclable

Reduce emissions: Switching to Li-ion technology can reduce carbon emissions by 21% compared to lead-acid batteries.

Power your operations with solar: Harness renewable energy and you can charge your vehicles using the electricity you generate. Solar power may not cover all your energy needs, but it can greatly reduce your reliance on traditional energy sources, cutting energy costs, reducing energy risk, and driving up the sustainability of your operation.

Optimise performance: Smart battery management ensures your trucks always receive the right amount of power, where and when it's needed. Battery management systems also track charge levels and battery health, ensuring optimal performance and reducing unnecessary charging cycles. That boosts your warehouse's productivity and cuts costs.

Recycle (almost) everything: Jungheinrich's sustainable battery recycling system recovers up to 95% of valuable materials from spent batteries. From production to recycling, we've created a closed-loop system that supports sustainability - perfect for businesses looking to reduce waste and environmental impact.



**BENEFITS BY THE PALLET-LOAD
AUTOMATION: IS IT WORTH IT?**

What handling challenges does every logistics business face?

Cost concerns: If they're going to make the upfront investment in automation, operators need to be confident in the long-term return on investment.

Operational efficiency: It's all about streamlining processes, so distributors are able to manage complex warehouse processes with agility.

Scalability: One-size-fits-all rarely fits anyone. Every operator needs a warehouse system capable of supporting its particular seasonal spikes and fluctuating demand.

Labour shortages: Skilled workers aren't easy to find. Automation can help maintain production while ensuring your talent is focused on areas of greatest need.

IT integration: Any new system needs to integrate seamlessly - and painlessly - with existing IT and management tools.



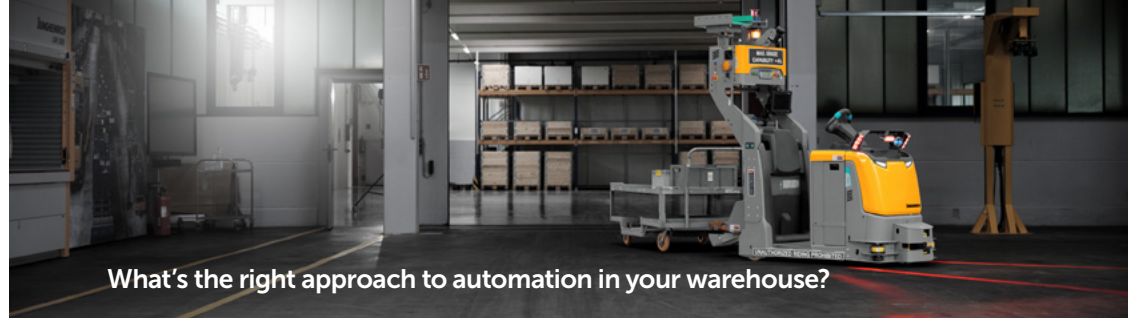
Warehouse automation: how it works

Warehouse automation systems use software and sensors to navigate and perform tasks:

Laser navigation: AGVs use laser beams to calculate their position based the distance to an array of reflectors, ultimately triangulating its position at all times.

(SLAM) - Simultaneous Localisation and Mapping is a technology that allows a device to create a map of an area while also keeping track of its own location within that area. SLAM uses a variety of algorithms, sensors, and computations to help a device navigate an unfamiliar environment.





What's the right approach to automation in your warehouse?

If you're considering introducing automation, it's important to set realistic expectations for return on investment and allow time for proper implementation and testing. Understanding where your business currently stands and identifying areas where automation can add value will ensure long-term success.

Take the following steps when planning your automation journey:

1. **Think strategically:** Automation systems should be tailored to your operation's needs. A massive, all-in-one system isn't always the answer. Focus on flexibility and scalability to handle peak seasons without oversizing your warehouse, and so your systems can scale with demand and adjust to shifting market conditions.
2. **Use data to drive decisions:** Analyse material flow and operational data to identify areas where automation has the potential to deliver greatest impact.
3. **Choose the right partner:** Work with a trusted partner who understands the specific challenges of the logistics sector and can provide tailored solutions.
4. **Sort your IT first:** Before introducing automation, ensure your IT systems are ready. Your WMS, WCS, and ERP tools need to be up-to-date and well integrated to support seamless operations. You'll also want to ensure that any new automation you introduce will integrate with legacy systems. Your automation partner should help you with this.
6. **Set clear goals:** Align your automation strategy with your broader objectives, such as managing seasonal peaks, improving delivery times, or expanding your product range.

Is warehouse automation in logistics worth the investment?

Warehouse automation has the potential to transform logistics operations. It's already had an enormous impact in many warehouses. But to ensure your business achieves sufficient benefit to justify the investment, it requires a 'reason to be' and a well-planned strategy to deliver real value.

Done right, automation can boost service quality and cut fulfilment costs - vital parts of every 3PL provider's proposition. Follow the above steps and work with your automation partner to build a business case, identifying opportunities, risks and the ways in which automation can support your business needs

With the case for automation established, you'll be able to ensure investment is aligned with the long-term needs of your business.



HANDLE WITH CARE: THE PATH TO AUTOMATION ACCEPTANCE

Automation is powerful. Impactful. It changes the nature of your warehouse operations, the speed with which you operate and the productivity of your operation. Crucially, it presents a solution to ongoing labour shortages faced by logistics operators, helping to ease the burden on teams and ensure their skills are used on higher value work.

Yet if automation is to be a success, your people need to understand its role and feel comfortable with it. Bring your people onboard, and you'll discover acceptance quickly turns to enthusiasm.

The 7 steps to acceptance

- 1 Explain the 'what' and the 'why':** Ensure your people understand what's being proposed, what technology you are planning to bring in, and the business case for it. It will help them understand what the technology can (and can't) do, and reassure them about their positions.
- 2 Work with experts:** Collaborate closely with your automation provider to ensure seamless integration, tailored to your needs, with minimal disruptions.
- 3 Involve your champions:** Connect your most experienced staff with the experts, so the experts understand the unique issues affecting your workplace, and so the staff know that their voice has been heard.
- 4 Provide training & support:** Offer interactive Q&A sessions and training modules to help your staff get comfortable with the new technology.
- 5 Empower key employees:** Train selected employees to become automation experts who can guide and support their colleagues.
- 6 Collect feedback:** As you roll out automation, gather feedback from employees to address concerns and showcase early successes.
- 7 Keep communication open:** Regular communication is essential to ensure smooth adoption and address any ongoing concerns or challenges.



NARROW AISLES; WIDE OPTIONS: PRODUCTIVITY IN FOCUS: VNA

Jungheinrich's very narrow aisle (VNA) stackers enable every warehouse to stack pallets or pick individual articles in very narrow aisles with ease. Combining impressive throughput performance with nimble space utilisation - the range spans manual, semi-automated and fully autonomous options.

Manually-operated powered pallet stackers

With load capacity of up to 2000kg and easy manoeuvrability even in the smallest of spaces, our pedestrian stacker trucks are the ideal warehouse helpers.

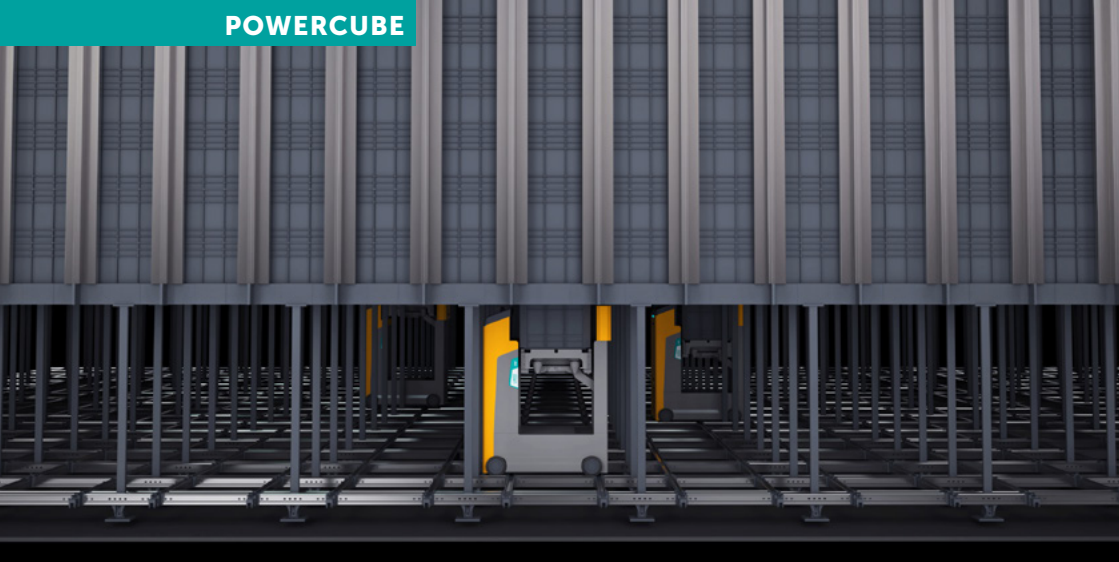
Semi-automated VNA trucks

Powerful and economical stacking and retrieval of entire pallets or individual items, at heights of up to 18 metres and weights of up to 1600 kg. A modular system with 5 million configuration options, it's always ready to individually adapt to your warehouse requirements.

Fully automated VNA trucks

With maximum performance at lift heights up to 13 metres, our mobile robots set new benchmarks in automated narrow aisle warehouses. The pallet and clearance detection option can be used to automate existing racking in previously manually operated narrow aisle warehouses. The optional 360° safety sensor system even enables use in an open, unfenced narrow aisle warehouse.





BOX CLEVER: **JUNGHEINRICH POWERCUBE - THE NEW DIMENSION IN EFFICIENCY**

If next-gen intralogistics vehicles make your logistics more efficient, just imagine how much more efficient your operation could be when you combine them with next-gen storage.

You only have a certain amount of time to complete an order. You only have a certain amount of storage space. PowerCube gives you more space and time than you ever thought possible.

As a stand-alone solution or integrated into a complex automated warehouse, the Jungheinrich PowerCube transforms small parts storage.

The cost effective, multi-award-winning PowerCube delivers:

- Unique space utilisation up to 12m high
- Scalability in terms of throughput, number of containers and shuttles
- Up to 4x higher storage density
- Easy integration with your IT infrastructure

[Find out more about PowerCube](#)



SAFELY STACKED: CREATING SAFER WAREHOUSES FOR PEOPLE, PRODUCTS, INFRASTRUCTURE & DATA

What safety challenges do all 3PL operators face in their warehouses?

Racking risks: Food and drink warehouses are often fast-moving environments. Without protection systems, that speed can lead to an increased risk of racking damage from truck collisions.

Protecting personnel: Every warehouse that puts people and vehicles in close proximity creates danger for pedestrians.

Product damage: Unless operatives really can 'handle with care', products, people and profit are at risk.

Operational efficiency: Safety is critical, but how do you ensure it while maintaining compliance and efficiency in warehouse operations?

Data security: How can 3PL businesses protect sensitive data while leveraging automation for operational benefits?

The big four: how tech supports safety in logistics

- 1. Protecting infrastructure:** Regular (human) inspections of racking and storage systems are essential to ensure your infrastructure remains safe and compliant. But smart hazard management, such as visual and acoustic alerts, can reduce collisions, prevent accidents in high-traffic areas, and reduce the risk of inspections revealing unwelcome surprises.
- 2. Protecting personnel:** Technologies like speed control, warning signals, and restricted access areas keep staff safe while they focus on their jobs.
- 3. Protecting goods:** Assistance systems such as fork cameras, load monitoring, and laser-guided positioning ensure goods are stored and retrieved without damage, protecting your inventory (and racking), and maintaining smooth, efficient operations.
- 4. Protecting data:** Increased automation increases a business' reliance on data, which needs to be protected. Custom fleet management systems centralise your operational data, securing it with advanced encryption and access controls. This safeguards your business and ensures efficient, secure processes.

Safety in focus: zoneControl

There's a pedestrian heading towards the loading bay shutter. On the other side, a pallet truck is approaching. No camera angle can see through the bay door. But a modern zone control system effectively can.

A zone control system uses digital 'anchors' placed at high risk areas. As a truck reaches the high risk zone, the anchor module triggers the gate opening and automatically slows the truck to a crawl to avoid collisions.

Entry can be made truck-specific, so trucks not intended for the loading bay can't trigger the door (and therefore can't be involved in a collision). And wearable 'person tags' can provide additional protection to individuals on the warehouse floor, so when a truck and pedestrian are both at risk points at the same time, everyone is notified.

[Find out more about zoneControl](#)



**CRATE EXPECTATIONS:
POWERLINE - SHAPING THE STANDARD IN
WAREHOUSE DISTRIBUTION**

Discover the Li-ion vehicles that deliver the efficiency and safety to transform warehouse operations.



Outstanding agility

Move up to 20 % more pallets per hour than average thanks to optimal use of space.

Maximum safety

Choose the very best in protection for employees.

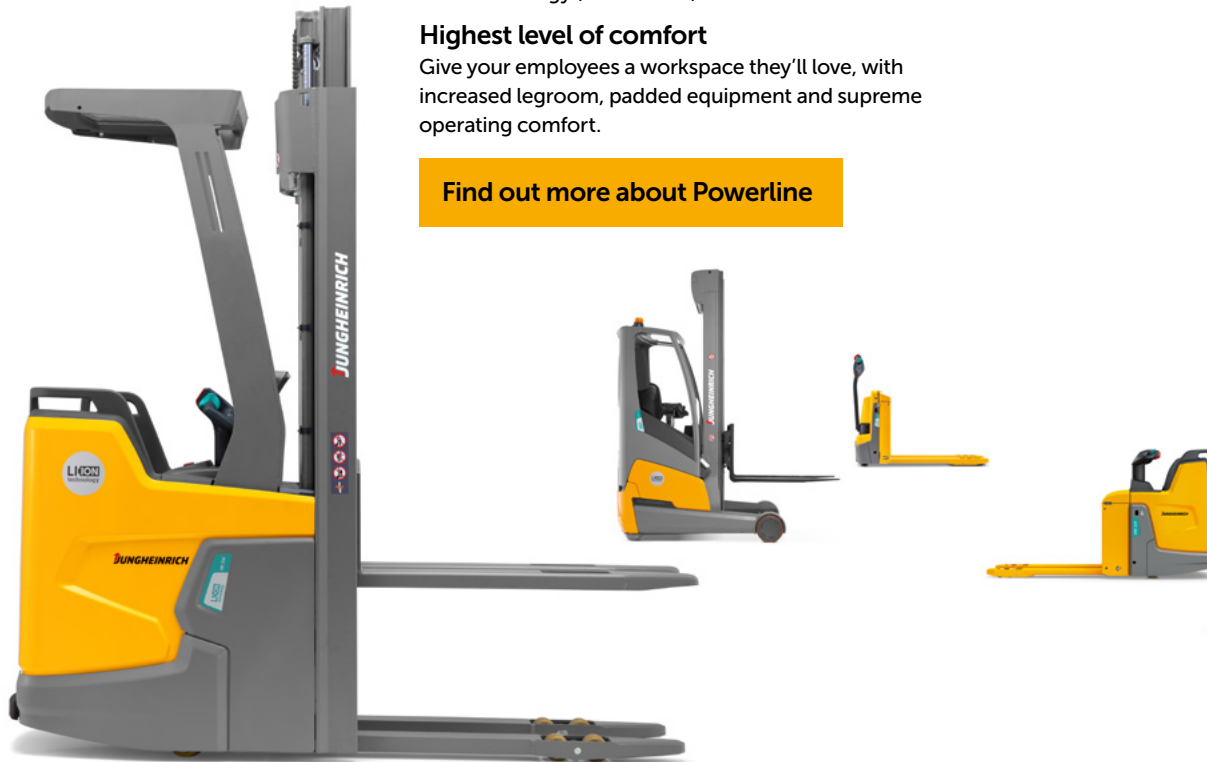
Unparalleled sustainability

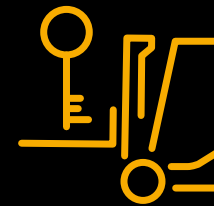
Keep at the forefront of the sector with what are arguably the most sustainable vehicles in the industry - consuming 20% less energy (vs lead acid).

Highest level of comfort

Give your employees a workspace they'll love, with increased legroom, padded equipment and supreme operating comfort.

[Find out more about Powerline](#)





BOTTLENECKS BEATEN: RENTAL AT JUNGHEINRICH.

Your complement of Jungheinrich trucks and handling equipment will be based on anticipated demand. But what happens when that demand changes? Jungheinrich is ready to help.

Jungheinrich's rental service gives you swift access to all the additional fork lift trucks and pallet trucks you need to manage unexpected demand and peak seasons.

With rental from Jungheinrich:

- You never have an equipment shortfall
- You never have capital tied up in equipment you don't use regularly
- You can always access the latest truck technology when you need it
- We take care of truck maintenance

And you can access all the equipment you need, anywhere in the UK, with a single call.



[Find out more about Jungheinrich Rental](#)



JUNGHEINRICH IN ACTION
CUSTOMER SPOTLIGHT: KAMMAC

DYNAMIC NEW JUNGHEINRICH PARTNERSHIP
HELPS KAMMAC ACHIEVE INDUSTRY-LEADING
AGILITY.



KAMMAC achieve industry-leading agility with their fleet of very narrow aisle trucks. They enable Kammac to respond dynamically to customer requirements and being semi-automation ready, with RFID technology for aisle and position recognition, they are ready to use with Jungheinrich's Fleet Management System

The client

Kammac is a flexible and reliable third party logistics (3PL) provider, providing nationwide supply chain management services to a range of companies. Operating from their own and customer sites, they add value to the supply chain of businesses of all sizes at any level. Kammac, featured in The Sunday Times' Hundred 2022 of fastest growing companies.

The challenge

Key to Kammac's growth strategy was to dramatically cut their lead times to enable them to be more agile and responsive to better serve their ever-increasing customer demands.

They were looking for a system that would take their offering to the next level and bring complete flexibility to the operation - one which would increase throughput and move the company forwards by introducing automated aspects to speed up processes that were once manual - minimising driver input and thus creating a much more streamlined process in the operation.





Jungheinrich's agility in offering the right packages to us, in terms of kit, fleet and availability, together with their commitment to service, is helping to take our offering to the next level. **It is good to find a partner with the same commitment to innovation as us.**

Ged Carabini
Chief Operating Officer
Kammac



The solution

The shortest lead times in the industry were a major driver behind Kammac's decision to replace aging carriers at its Trafford Park site with a new fleet of Jungheinrich's VNA (very narrow aisle) equipment. Investment includes **9 EKX 5 Series VNA and 12 lithium ion-powered pallet trucks with RFID technology** for aisle and position recognition.

The semi-automated narrow aisle trucks we supplied, once connected to the warehouse management system, tell the truck where to go. Once accepted by the user, the truck will drive itself to the point in the racking where the pallet is to be picked. It also automatically takes the pallet out of the racking in a safe manner and onto its next destination. The system standardises processes, increase throughputs and driver input is minimal.

Kevin Barber, Head of Corporate Business Solutions at Jungheinrich explains:

"Contracts can change quite regularly in logistics and no company wants to overcommit to equipment it needs now but may not need in the future. The new contract gives Kammac a more flexible, dynamic solution where they can on-hire and off-hire trucks throughout the contract without having to give us long notice periods or pay financial penalties. It's an arrangement that enables both Jungheinrich and Kammac to be agile and responsive to our customers' needs."

Halving lead times

Agility isn't the only benefit for Kammac. "No other intralogistics firm offers precisely this form of arrangement, one that lowers costs and helps de-risk companies with ambitious growth strategies. Just as important for our customers however, are our lead times. We are able to deliver at least twice as fast as our competitors. Currently our new truck lead times are as low as 13 weeks for VNA trucks. That compares with quotes of over 12 months elsewhere in the industry."

In the UK warehouse space is at a premium, - the best way to optimise that space is to make aisles as narrow and as tall as you can. The trucks in this particular VNA solution achieve a 14280mm lift height.

Through a combination of fleet management and VNA supply, Jungheinrich UK is helping to give Kammac the capacity, efficiency and flexibility it needs to drive additional growth."



ADD TO CART

Ready to transform your operation? Talk to the UK's most trusted source of material handling solutions. Contact us at transportandwarehousing@jungheinrich.co.uk and let's grow together.

For further information on all products Jungheinrich can offer, simply call:

0800 357457

or visit:

www.jungheinrich.co.uk

or contact your local sales manager.