

A photograph of two men standing in a warehouse. The man on the left is older, with grey hair and glasses, wearing a grey V-neck sweater over a white collared shirt. The man on the right is younger, with dark hair and a beard, wearing a dark suit jacket over a light-colored collared shirt. They are both looking towards the right. The background shows industrial shelving with yellow beams and various items stored on them.

**Logistics Systems.**  
**Customer references.**

***J*JUNGHEINRICH**



## Global enabler.

With more than 60 years of experience in intralogistics, Jungheinrich AG is one of the world's three largest suppliers of material-handling equipment, logistics systems and services.

Moreover, we offer you a comprehensive product portfolio and act as general contractor for complete logistics solutions – independent of the degree of automation.

We plan and design your tailor-made solution – a solution that does not exist anywhere else.

Even after finishing your intralogistics solution, we are at your side: with more than 4,800 Jungheinrich service technicians worldwide, we have one of the densest service networks in the industry.

Each solution is individual – just like your company. Read more about our satisfied customers and their industries with their specific intralogistics requirements on the following pages.

Is there a need for optimisation and handling in your warehouse? You want to reduce costs and increase the efficiency of your warehouse? Learn more on our website [www.jungheinrich.com](http://www.jungheinrich.com) or contact us directly: [info@jungheinrich.com](mailto:info@jungheinrich.com).

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# Chemical industry and pharma. Solutions for chemical logistics.

## Safety is everything.

The chemical and pharmaceutical sectors place extremely high demands on logistics processes. We offer our customers from these industries optimum solutions to suit their individual requirements, ranging from hazardous goods storage with explosion protection to warehouse automation.

Logistics in the chemical and pharmaceutical industries is particularly challenging. Stringent legal provisions, along with maximum safety and hygiene requirements when handling sensitive, often even dangerous, substances, are guaranteed in this area. This applies as much to the transport, storage and correct handling of hazardous substances as it does to the priority of occupational and environmental safety.

More than in any other field of logistics, mistakes are simply not an option in the chemical and pharmaceutical sectors. Jungheinrich is well equipped to face this challenge head on. We offer comprehensive solutions to optimise your goods flows and raise their efficiency, all the while upholding the most exacting quality and safety standards.





## Coko-Werk GmbH & Co. KG Bad Salzuflen.

**Automation for increased  
efficiency and value.**

**JUNGHEINRICH**

### **Project:**

Coko-Werk GmbH & Co. KG, Bad Salzuflen, Germany

### **Industry:**

Plastics industry

### **Task:**

Increased efficiency of the narrow-aisle warehouse through automated high-rack stackers and conveyor systems

### **Project duration:**

10.2013 – 05.2014

### **Services:**

- Jungheinrich Warehouse Control System (WCS)
- Wi-Fi solution with directional antennas
- Automation of narrow-aisle warehouse
- High-rack stacker ETX 515a
- Conveyor system including control system

### **Most important results:**

- Increased efficiency
- Reduced energy consumption
- Increased overall availability
- Reduced wear

### **From one supplier for almost 90 years**

The company Coko-Werk GmbH & Co. KG has made a name for itself in the plastics industry. Its key markets include the construction of tools and plastic items, injection moulding and the assembly of components, painting, foaming, welding and printing. Its customers are based in the automotive, medical and mechanical engineering

industries. The global company manufactures products in Germany, Poland and Turkey and achieves annual sales of approx. 140 million euros.

### **Convincing overall concept**

Following an extensive capacity and process analysis, two service providers offered plans for an automated narrow-aisle warehouse. Coko decided to accept Jungheinrich's offer on the basis of the complete needs analysis, the convincing overall concept and not least the price-to-performance ratio. Another important factor was that Coko has already been using Jungheinrich forklift trucks for a long time, and is very happy with them in terms of quality, service and price.

### **Customised logistics system solution**

To increase throughput efficiency and cost-effectiveness, a high-bay warehouse with space for approx. 3,240 pallets has been built at the main site in Bad Salzuflen. Following extensive economic efficiency analyses, the decision was made to implement an automatic narrow-aisle warehouse. In order to meet the requirements in terms of reliability, efficiency and warehouse safety, this required a complete logistics system solution. This includes warehouse control using the Jungheinrich Warehouse Control System (WCS), for example.

## The requirement

### Improvement of warehouse processes

Since 2008, Coko has used an ERP system introduced by SAP. The consequence of this is that only one shipping storage location and only block storage areas are available in SAP. Goods which belong together must therefore be stocked separately, which results in the picker taking a long time to locate items.

## The solution

### Automated high-rack stackers in a narrow-aisle warehouse

In planning an intralogistics project, Coko was guided by the economic efficiency analyses of Jungheinrich, and invested in three automated ETXa high-rack stackers, a narrow-aisle warehouse and the conveyor systems to take items to and from storage. The ETXa is equipped with a swivelling fork and designed for an optimal lift height of ten metres. In order to avoid downtime during battery changes, the ETXa has been designed to be powered by busbars. The energy reclamation during lowering of the load handler and during regenerative braking confirms the high energy efficiency of the automatic high-rack stacker. In addition, the ETXa travels diagonally to the storage locations, with an optimised speed profile, which saves time. The required throughput efficiency is exceeded for the whole system.

Following a system and performance analysis carried out in advance, a controller-based Wi-Fi solution was implemented in the automatic environment. An advantage of this radio data solution is that the central administration of the connected Access Points is possible both directly and remotely. The challenge with regard to implementation is in covering a narrow aisle approx. 80 metres long with directional antennas in the 5 GHz frequency range. Data is exchanged between the vehicle terminals and the implemented SAP WM via the Jungheinrich WCS, which serves as a material flow controller, controls the conveyor system and manages the 3,240 pallet positions. The

Jungheinrich WCS is also responsible for the authorisation and calculation of target locations in the narrow aisle. Additionally, the system optimises storage and stock removal by using double cycles. Another feature is 'aisle balancing', where the Jungheinrich WCS does not store an item exclusively in one aisle, but rather stores it in several aisles at the same time. This lowers the risk of being unable to deliver an item – e.g. due to a blocked aisle. The delivery specification also includes a label printer, mobile workstations and truck terminals for reach trucks.

## Customer statement

### Increased efficiency and higher supply capability thanks to custom-designed total solutions

"Since we invested in the automatic narrow-aisle warehouse, we have known which items are in which storage locations. This means we can now work according to the FIFO principle and fulfil the corresponding guidelines of the automotive industry. Furthermore, we benefit from significantly more efficient logistics processes," states Jens Kastning, Head of Logistics at Coko-Werk GmbH & Co. KG. Furthermore, he stresses: "The number of high-rack stackers means we benefit from a high level of efficiency, resulting in improved supply capability. An advantage which can be used to good effect with our customers."



Jens Kastning, Head of Logistics,  
Coko-Werk GmbH & Co. KG in Bad Salzungen.

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**Automatic pallet high-bay  
warehouse including  
MIAS stacker cranes,  
Sauer GmbH & Co. KG, Föritz.  
Speed and a low error rate.**



**Project:**

Sauer GmbH & Co. KG, Föritz, Germany

**Industry:**

Manufacturer of plastic parts

**Task:**

Construction of an automatic pallet high-bay warehouse with stacker cranes, conveyor technology peripherals and a connection to the Jungheinrich WMS

**Project duration:**

08.2014 – 05.2015

**Services:**

- Fully automatic pallet high-bay warehouse in silo design with three double-deep racking aisles
- Three MIA5 stacker cranes
- Conveyor technology including a centring station
- Jungheinrich Warehouse Management System (WMS) and material flow computer

**Most important results:**

- High handling performance
- Fast access options
- Low error rate
- High degree of space utilisation

**Decades of success**

Sauer has been processing plastic parts since 1957, originally for the domestic toy industry. Today's core business includes the development and production of bottles and containers for the cosmetics, chemical, pharmaceutical and food industries as well as technical parts, such as infant car seats, or large blow-moulded parts like sleds. As a service provider, Sauer offers its customers the entire process of development, production and logistics.

**State-of-the-art, double-deep pallet high-bay warehouse**

Jungheinrich supplied a wide range of products, including a 130 m long, 23.5 m wide and 38 m high double-deep silo storage system, conveyor technology with a centring station, a pallet doubler and labeller, fire protection gates, a ramp as well as three stacker cranes with telescopic forks from the Jungheinrich subsidiary MIA5.

**IT connection**

In addition, the entire software and IT for the high-bay warehouse were supplied by Jungheinrich, consisting of the control technology and the WMS with an integrated material flow computer. The WMS controls the entire logistics processes of the plant and enables Sauer to manage different production batches.



## The requirement

### Smooth process flow

Sauer's investment into the intralogistics system resulted from a growing production output due to the positive business development and the corresponding expansion of the operator's truck fleet. This intralogistics system by Jungheinrich was designed for the automatic storage of finished parts and the delivery of full pallets. For Jungheinrich as the system integrator, the goal was to create an economical solution with fast access options, a low error rate and a high degree of space utilisation.

## The solution

### New storage concept with automatic stacker cranes

Prior to storing the palletised plastic parts, the conveyor system of the automatic intralogistics system transports them to a centring station. This is followed by a hood stretcher, which places a film on top and around each loading unit, and a contour check. Subsequently, the pallets are transferred on the conveyor system to the three-aisle automatic high-bay warehouse, which has more than 25,500 pallet locations split across eleven storage levels. At the end of the high-bay warehouse, the stacker cranes take over the loading units from the storage lines and place them on the front or rear pallet location specified by the Jungheinrich WMS. Designed for double-deep load handling, each of the telescopic forks of the stacker cranes can pick up a loading unit. This version of the stacker crane works much more economically than one that can simultaneously pick up two load carriers but is equipped with a stronger mast or a double mast. The stacker cranes place loading units that are transported out of the warehouse on retrieval lines. From there they run on the previously installed conveyor system, where they can be labelled partly on the front and on the long side. This is followed by a pallet doubler, which enables the stacking of two load carriers with a maximum

length of 1,500 mm on top of each other. Subsequently, a transverse shuttle transports the loading units in a time-saving manner to the gravity tracks, which supply the outgoing goods department.

## Customer statement

### Short construction time and high system availability

"The advantage of the solution primarily lies in the high throughput. This is based on the concept of the stacker cranes and their telescopic forks as well as on the use of the transverse shuttle, which allows the load carriers to be available at the outgoing goods department more quickly. For the operator, an additional plus is that the customer service for the automatic warehouse comes directly from Jungheinrich," says Norbert Manger, who has been responsible for the realisation of the system as a project manager from Jungheinrich. Apart from this, Sauer points out the short construction period, the favourable price-performance ratio and the high system availability. In addition, the system's operation is user-friendly, even for new employees. The customer also appreciates the possibility of extending the high-bay warehouse, which is already designed for three-shift operations, by yet another aisle.



Automatic pallet high-bay warehouse,  
Sauer GmbH & Co. KG, Föritz, Germany.

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**Automated intralogistics,  
Solupharm Pharmazeutische  
Erzeugnisse GmbH, Melsungen.  
Automated intralogistics solution  
in accordance with GMP guidelines.**

**JUNGHEINRICH**

**Project:**

Solupharm Pharmazeutische Erzeugnisse GmbH,  
Melsungen, Germany

**Industry:**

Pharmaceuticals

**Task:**

Automated intralogistics solution in accordance with  
GMP guidelines

**Services:**

- Automated Guided Vehicles ETX 515a
- Jungheinrich Warehouse Control System (WCS)
- Area access control
- Racking
- Conveyor technology

**Most important results:**

- High level of flexibility
- Process reliability of the solution
- Elimination of mix-ups and incorrect loading
- Efficient use of employees

**Leading contract manufacturer for parenteral  
preparations**

Solupharm Pharmazeutische Erzeugnisse GmbH is a mid-sized family business and a leading contract manufacturer for parenteral preparations. The portfolio of Solupharm includes water preparations for injection purposes, electrolytic solutions, vitamin preparations, pain relievers, herbal and homeopathic preparations as well as sterile anaesthetics.

**Individual and process support**

Solupharm fills glass ampoules and glass vials with sterile medicinal products. Great emphasis is placed on individual and process-related support for international customers. This ensures that customer orders can be processed quickly and flexibly without bureaucratic complications and in compliance with GMP.

**Flexible logistics system solution**

To increase its storage capacity and to ensure compliance with the GMP directive in the future, Solupharm invested in a narrow-aisle warehouse with automated high-rack stackers. The new building can accommodate a total of 1,680 pallet space positions for semi-finished and finished goods.

## The requirement

### Intralogistics in accordance with GMP guidelines

Solupharm specialises in the production of sterile injection and infusion preparations. For this reason, the requirements of Good Manufacturing Practice (GMP) had to be taken into account when the automated warehouse was constructed. In addition to this requirement, Solupharm expressed a desire to relieve the employees of operational tasks in the future in order to utilise the employees more effectively for administrative tasks.

## The solution

### Automated high-rack stackers in a narrow-aisle warehouse

As a general contractor, Jungheinrich planned and implemented a narrow-aisle warehouse for Solupharm with two automated high-rack stackers. The ETXa high-rack stackers are designed for 25 double cycles per hour. They process their orders in two aisles, each 35 metres long. The ETXa models stack and retrieve goods up to a maximum depositing height of six metres. Their energy is supplied by open bus bars arranged on the racks. This ensures availability 24 hours a day, seven days a week, with no breaks for battery charging or battery exchange. As a result, the company is able to perform quality assurance in accordance with GMP requirements without having to reinforce the team.

The Jungheinrich Warehouse Control System (WCS) offers process reliability and increased efficiency. The possibility of mix-ups and costly incorrect loading of Solupharm's expensive goods will also be a thing of the past. The Solupharm ERP system posts movements of goods and initiates the intralogistics processes. Then the ERP system reports the transport orders for the pallets to the WCS. The WCS assigns warehouse orders to the automated high-rack stackers via WLAN. Automation ensures permanent availability of the system. This makes it possible to work from Monday morning until Saturday noon without

interruption and without having to schedule additional employees for on-call night duty.

One special feature of the total solution designed by Jungheinrich specifically for the customer Solupharm is the installation of an emergency access to the narrow-aisle warehouse. If an unexpected malfunction occurs or maintenance is required, the warehouse can still be operated using manual devices.

## Customer statement

### Custom-designed total solution offers potential for expansion

"Jungheinrich has also proven to be a very flexible collaborative partner, particularly when the question arose at a very advanced stage of implementing the project whether we should set up a refrigerated warehouse in one of the aisles. Jungheinrich ultimately designed the relevant aisle so that a cold store could be retrofitted. This flexibility confirmed the positive experiences we already had with Jungheinrich even before investing in the narrow-aisle warehouse with trucks. Despite the challenge, everything went optimally. If higher throughput levels are needed in the future, we are prepared. The warehouse is designed so that it can easily be expanded to four high-rack stackers," explains Dr Tobias Schönberg.



Dr Tobias Schönberg, Manager Production Warehouse, Solupharm Pharmazeutische Erzeugnisse GmbH, Melsungen.

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## **Retail and wholesale.** **Solutions for retail and wholesale logistics.**

### **Speed is your key to success**

Speed, flexibility and optimum cost efficiency are key when it comes to logistics processes in retail and wholesale trade. The e-commerce boom in particular has made intelligent solutions an essential requirement for all customers. After all, every minute counts!

E-commerce and online retail are on the rise. Retail and wholesale customers have very clear expectations: rapid delivery and additional resources during seasonal sales

peaks or campaign periods. When combined, these individual factors require storage and order picking with maximum flexibility. Are you looking for a holistic, flexible and scalable solution? Or perhaps you require an omnichannelling distribution centre for all incoming order types? Then you have come to the right place! We offer tailored logistics solutions for the world of retail and wholesale trade.





**Wessels + Müller AG,  
Hedemünden.  
Turnkey central  
warehouse from  
Jungheinrich.**

**JUNGHEINRICH**

**Project:**

Wessels + Müller AG, Hedemünden, Germany

**Industry:**

Wholesaler for vehicle parts, tyres, workshop equipment

**Task:**

Planning, development and construction of a new central warehouse

**Project duration:**

06.2012 – 03.2014

**Services:**

- High-bay warehouse with nine aisles
- Automatic small parts warehouse with 15 aisles
- Complex order picking and conveyor system for pallets and containers including control technology
- Forklift trucks and racking for conventional warehouse areas
- Jungheinrich WMS

**Most important results:**

- Capacity expansion
- Increased productivity
- Reduced errors
- Complete set-up of IT and logistics processes

**Expansion of the logistics centre due to positive market developments**

Wessels + Müller AG places great importance on constant further development and the international expansion of the company. The wholesaler for car and commercial vehicle spare parts and accessories currently already has 95 branches in Germany, four in Austria and the Netherlands, and five in the United States. In addition, the company also has a logistics centre. Overall, 175,000 items are listed at Wessels + Müller.

**Prepared for growing market demands**

The timely delivery of items to customers is of the utmost priority at Wessels + Müller. This is facilitated by the new central warehouse in Hedemünden planned and commissioned by Jungheinrich. The construction of a new logistics centre was inevitable because the opportunities for optimising the old site in Lotte had been exhausted. All Wessels + Müller AG sales outlets in Germany, the Netherlands and Austria are supplied daily overnight with goods from the new central warehouse in Hedemünden, Lower Saxony.

## The requirement

### A rapidly growing industry needs space – and automated processes

Wessels + Müller AG was on the lookout for a strong partner for the planning and construction of the new central warehouse to serve as general contractor with responsibility for all the logistics. Jungheinrich fulfilled this requirement profile: as a complete service provider for intralogistics, not only do we offer our customers overall project management from initial customer contact to final acceptance, but we also provide the required forklift technology and IT environment of the warehouse. This enables the customer to implement the complete package required for the operation of its warehouse with a single contact partner.

Given the abundance of listed products as well as the guarantee of short delivery times to its customers, Wessels + Müller needed a larger and more productive warehouse. In addition to planning the new warehouse, the focus of the project was on increasing the overall efficiency of the entire material flow. A high degree of automation and the error-free connection of all trucks to the Jungheinrich WMS posed the greatest challenge.

## The solution

### Automated and manually operated warehouse areas

In cooperation with Wessels + Müller, a completely new warehouse was planned and constructed. In order to accommodate all the items listed by Wessels + Müller in the required quantities, an automatic pallet warehouse with 42,480 pallet positions was constructed. The 40-metre tall high-bay warehouse is accessed by nine sets of rack operating equipment. The automatic small

parts warehouse has 149,760 container storage locations that are arranged to a double depth and distributed across 15 aisles. Automation of a large proportion of the warehouse avoids incorrect stacking, increases productivity multiple times over and ensures greater process reliability overall. Goods receipt, automatic warehouse areas, order-picking zones and dispatch are connected with each other via a complex and extremely powerful conveyor system for pallets and containers. The logistics centre also has a manually operated wide- and narrow-aisle warehouse, which is operated entirely with forklift trucks from Jungheinrich and is based on our own racking systems and warehouse equipment.

The automated management of all processes in the warehouse, including the truck guidance system, takes place via the Jungheinrich WMS. The Jungheinrich warehouseNAVIGATION system is also used to navigate the narrow-aisle trucks via the Logistics Interface to their destinations on an optimised movement curve.

The Jungheinrich WMS supports employees with visual information, improving process reliability when order picking in the automated small parts warehouse. The Pick-by-Light function uses a laser dot to identify the source container in the relevant sector from which the operator should pick. The Put-to-Light function then indicates the target container by means of a signal light.

In addition, the 'Empties management' module has been adapted to suit the customer's specific needs. The empties balance is not only registered for the supplier, it may also be used to determine the precise number of load carriers located in the stores at any time. This function thus creates a significantly higher level of transparency and cost control for empties. The interplay of the many Jungheinrich products used facilitates the perfect coordination of all processes running in the warehouse.

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# Fully automated high-bay warehouse, Steinbach VertriebsgmbH, Schwertberg, Austria.

Optimising the logistics processes in 24-hour operation.

 **JUNGHEINRICH**



## Project:

Steinbach VertriebsgmbH II, Schwertberg, Upper Austria

## Industry:

Wholesaler for swimming pools and accessories as well as sale of wool

## Task:

Fully automated high-bay warehouse as distribution centre

## Project duration:

05.2014 – 01.2015

## Services:

- Automated three-aisle high-bay warehouse, drive-in construction, for more than 19,000 Euro pallets
- Three stacker cranes with wireless shuttle
- Production trucks with radio data components
- After sales
- ISM Online

## Most important results:

- 24-hour operation
- Optimising the logistics processes

## Expansion of the warehouse capacities

Steinbach supplies swimming pools and accessories to customers across Europe. Around six years ago, company head Peter Steinbach began to completely restructure his company in several stages of expansion. The sixth and, for the moment, the last stage of expansion comprises a second plant: a fully automated high-bay warehouse as a distribution centre. The planning partner for this was the intralogistics specialist and forklift truck manufacturer Jungheinrich.

## A fully automated high-bay warehouse

In just five months, Jungheinrich brought on line a fully automated high-bay warehouse with a capacity of more than 19,000 pallets and a height of approximately 33 metres, which moves fully sorted pallets directly to the loading ramps. The warehouse comprises a loading area with nine docking bays and fully automated transfer from 240 suspended conveyors. The goal is to facilitate the collection of products 24/7, to shorten the length of time HGVs remain at the warehouse during peak times to the absolute minimum and to achieve a frequency of just a few minutes for dispatch.

The loading area and bottom plate were already completed in 2012 and the steel structure was replaced by a lightweight building construction for a period of two years. The handover of the high-bay warehouse took place on time at the beginning of 2015.

Steinbach has been a customer of Jungheinrich for many years. The company relies on Jungheinrich in all areas from manual fork lift trucks, customer service, ISM Online, manual racking systems and radio data components to automated solutions. The advantage is that Steinbach is able to clarify everything with one contact partner and is very well looked after.

## The requirement

### The ever-increasing demand for warehouse capacity

Seasonal peaks in demand for pools, etc. in the retail chains pose the greatest challenge for Steinbach's logistics. Hot summers with long heatwaves encourage a great many consumers to invest in a pool for their gardens. So this demand must then be satisfied quickly. Ensuring the high availability of products for retail required the construction of a further fully automated high-bay warehouse.

## The solution

### From meadow to fully automated silo

Jungheinrich Austria proved to be the right partner for the expansion project. Scarcely one year after the last project, it became clear that Steinbach would soon have to respond to the ever-growing demand for warehouse capacity if it also wished to safeguard the product availability factor in the future. The site was confirmed: a large meadow, approximately 800 metres as the crow flies from the company site. Jungheinrich took over the precise planning for a new automated warehouse. Time was short: from placing of the order to the scheduled completion, there were only a few months available to Jungheinrich. The racking system for Plant II is similar in design – the so-called silo – to that of Plant I, yet significantly larger. The new, three-aisle high-bay warehouse has a capacity of more than 19,000 pallets. Three stacker cranes (with wireless drive-in truck) stack on up to 13 levels. When planning the silo, Jungheinrich had to take into account building regulations, resulting in the unusual, doubly stepped shape of the building on the outer aisles. The silo is encased with airtight wall cladding.

## Customer statement

### Logistics solutions well conceived down to the smallest detail

"When turnover increases tenfold within a short time, then this is an exciting playing field for each supply chain manager on which they can let off steam. With a reliable partner at our side, we are very consistently pursuing the path of full automation and are supplying the whole world with our high-performance logistics machinery," says Peter Steinbach, CEO of Steinbach Group. "Jungheinrich took on the role of general contractor, responsible for construction of the two racking systems, and ensured that our day-to-day operations were undisturbed throughout the construction period. The result is logistics solutions well conceived down to the smallest detail and characterising the intralogistics landscape in the long term."



Peter Steinbach, CEO of the Steinbach Group, Schwertberg, Austria.

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## **Racking system with UPC at A.S. Watson in Heteren.**

### **Compact storage for a higher volume of goods and improved warehouse safety.**

**JUNGHEINRICH**

#### **Project:**

A. S. Watson Health & Beauty Benelux,  
Heteren, the Netherlands

#### **Industry:**

Health and cosmetics

#### **Task:**

New racking system for a higher volume of goods and  
improved fire protection

#### **Project duration:**

07.2015 – 09.2015

#### **Services:**

- Storage system with 36 channels and five levels
- 72 drive-through racking sections with three pallets each
- Three Under Pallet Carriers (UPC)
- 144 UPC-channel racks with 12 pallets each
- Order-picking tunnel with a length of 5,400 mm

#### **Most important results:**

- Increase of the volume of goods as well as of the overall capacity
- Improvement of working conditions
- Reduction of fire risks

#### **Daily supply of the stores**

A.S.Watson is the holding company of retail formats such as Kruidvat, Trekleister and Prikmepper. With more than 1,300 stores, logistics plays a decisive role in ensuring their daily supply. The company's distribution centre in

Heteren covers 68,000 m<sup>2</sup> and is among the most modern distribution solutions in the world. Depending on the amount of orders and the season, 500 to 800 employees work there every day. For this purpose, around four million packages can be processed every week.

#### **Higher goods volume plus increased fire protection**

In case of fire, the high number of bulky goods previously stored in the block storage in Heteren posed a hazard, as it could only be insufficiently reached with water. In addition, it was difficult for the order pickers to travel between the stored goods. For this reason, a compact storage was chosen.

#### **Individual solution by Jungheinrich**

Although drive-in and drive-through rackings are the most common solution for a compact storage, Jungheinrich suggested a racking system consisting of channel racks with UPC and drive-through racking sections, which they deemed most suitable for the operation. With this solution, the efficiency of the entire material flow was optimised and the overall capacity increased significantly.

## The requirement

### Increase of goods volume, safety and efficiency

To begin with, the task included ensuring enough storage capacity on 600 m<sup>2</sup> as well as a sufficient supply of products at the picking stations.

Additionally, in case of emergency, highly flammable products such as napkins and tissues had to be reached by a sufficient supply of water.

## The solution

### Jungheinrich channel racks with UPC and order-picking tunnel

In order to achieve an optimal overall capacity, a five-level storage system with 1,944 pallet locations was built on a floor area of 600 m<sup>2</sup>. The upper four levels consist of 36 channel racks for UPC. Each channel rack has a capacity for 12 pallets and also ensures a gap of 75 mm on both sides. These gaps guarantee an ideal water supply in emergency situations. The bottom storage level is an order-picking tunnel, enclosed by 72 drive-through racking sections on both sides. Pallets move automatically to the picking location and, thus, reduce the reaching depth for the order picking personnel. This minimises physical strain and ensures the optimal accessibility of the goods. In addition, the driver can control the UPC on his terminal while driving, thus avoiding waiting times.

## Customer statement

### Productive and safe order-picking

"In order to achieve an annual increase in our goods volume, it was time to find a new solution that suited our specific requirements," says Steven Beerens, Project Manager of Supply Chain Development. "We are very satisfied with the achieved results. As far as we know, this is the first truck-operated pallet shuttle system in this country," says Beerens.



Steven Beerens, Project Manager of Supply Chain Development, A.S. Watson in Heteren.

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**JUNGHEINRICH**



## Central distribution centre for Birner, Austria.

**Efficient and faster spare  
parts distribution despite  
earthquake zone 4.**

**JUNGHEINRICH**

### **Project:**

Birner Gesellschaft m.b.H, Vienna, Austria

### **Industry:**

Automotive parts and accessories

### **Task:**

Realisation of a central distribution centre for efficient spare parts logistics

### **Project duration:**

05.2016 – 09.2016

### **Services:**

- Complete central warehouse: two-storey modular shelving, two-storey steel construction platform, pallet storage, special exhaust system and long goods storage as well as drive-through racks
- Various trucks
- Jungheinrich Fleet Management (ISM Online)
- Charging concept
- Various Profishop articles

### **Most important results:**

- Efficiency increase by exploiting synergies
- Execution of shorter delivery time frames
- Improved inventory management
- Earthquake-proof racking system

### **Austria's market leader for automotive parts and accessories**

Founded in 1931, the family-owned company Birner is Austria's largest distributor of automotive spare parts. The company has 350,000 available items – 150,000 of which are constantly in stock. With a total of 29 locations and 560 employees throughout Austria, the company generated a yearly turnover of around 140 million euros in 2016.

### **Challenge of spare parts management**

Latest market trends led the Birner Group to develop a new logistics strategy and to invest in a modern distribution centre. In particular, the changing and constantly growing diversity of products played a decisive role. In order to meet these requirements, Jungheinrich implemented a centralisation concept, which places additional emphasis on safety and stability due to the location in an earthquake zone.

### **Everything from a single source**

Birner was looking for a full-service provider as well as a single contact person with project responsibility for the construction of a new central distribution centre for Austria. As a general contractor, Jungheinrich participated in a tender, prevailing ahead of three other competitors to realise a tailor-made solution of different racking systems for Birner Gesellschaft m.b.H.

## The requirement

### Complex circumstances for statics

At first sight, the concept did not impose any special requirements regarding the technical implementation by Jungheinrich. In fact, the real challenge was that the premises in Wöllersdorf-Steinabrückl was a used property from the 1990s. That is why it had to be updated to the modern requirements of Birner Gesellschaft m.b.H. as well as to the e-commerce trade. In addition, the area of the distribution centre turned out to be an earthquake zone. As a result, this topographical situation led to special requirements for the statics of the racks and the stability. The rack frames could not be placed evenly, as common elsewhere, but had to be adjusted to the floor of the warehouse and its concrete slabs.

## The solution

### Earthquake-proof

For the optimisation of the spare parts management, a new storage system from Jungheinrich was implemented with a usable area of 11,600 m<sup>2</sup>. The tailor-made solution, consisting of modular shelving, a steel construction platform and the pallet racking system, ensures an efficient and continuous workflow of the spare parts distribution processes, from the delivery of the suppliers to the delivery of the picked products. The individual areas are connected by pallet and container conveyor technology. As a result, the current storage capacity covers almost 5,700 pallets and over 160,000 modular shelving spaces. In addition, various vehicles from the Jungheinrich product portfolio are in operation.

## Customer statement

### A win times three

Head of logistics Stefan Ulz: "Jungheinrich has proven to be a partner who – after three tenders for the racking systems and the three-storey order-picking warehouse – was able to provide us with the best racks and safety concept. We are especially impressed that all partial solutions are seamlessly connected to create one complete logistics solution. We will continue to rely on Jungheinrich's services in the future, for example when we are planning on an expansion of the distribution centre."



Stefan Ulz, Head of Logistics, Birner Gesellschaft m.b.H., Vienna, Austria.

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**JUNGHEINRICH**



## Modern central warehouse for Keller & Kalmbach GmbH, Hilpoltstein.

Increased storage and order-picking capacity with a high degree of automation.

**JUNGHEINRICH**

### Project:

Keller & Kalmbach GmbH, Hilpoltstein, Germany

### Industry:

Connecting elements and fastening technology

### Task:

Construction and expansion of the central warehouse with a high degree of automation

### Project duration:

Phase 1: 2008 – 2009

Phase 2: 2014 – 2016

### Services:

Construction phase 1:

- Automated high-bay warehouse (HBW) for 35,000 pallet positions
- Automated small parts warehouse (ASW) for 160,000 cartons
- ASW for 8,000 trays
- 1,000 m conveyor technology
- Jungheinrich Warehouse Management System (WMS)

Construction phase 2:

- Expansion of the HBW by 37,000 pallet positions
- Expansion of the ASW by 137,000 cartons
- Expansion of the ASW by 15,000 trays
- Doubling of the conveyor technology capacity and order-picking capacity including palletising robots

### Most important results:

- Increase in volume of goods as well as total capacity
- Maximised order-picking performance
- More flexibility for short-term orders
- More efficient processes and ergonomic design of the picking workstations

### Leading service provider for C parts management

Keller & Kalmbach was founded in 1878 in Munich as a wholesaler for screws and blacksmithing supplies and is now one of the leading service providers for C parts management. With around 800 employees, the company generated EUR 270 million in sales in 2016. That is almost twice as much as in 2009, when the first construction phase of the new central warehouse in Hilpoltstein was finalised under Jungheinrich project management.

### Expansion and rationalisation investment

The company's strong focus on C parts management for industrial customers demanded special requirements of the intralogistics processes in the warehouse for goods to be delivered to customers at the right time, to the right place and in the right quantity. This resulted in larger storage volumes and an increased diversity of items, which meant that storage space became increasingly scarce. Consequently, in 2008, the management decided to build a new central warehouse and, following continued growth, to extend it in 2014.

### Jungheinrich – everything from a single source

When the contract was awarded, it was important that the service provider was able to supply everything from a single source and offered a special after sales service. During both the construction and extension of the warehouse, it was clear that Jungheinrich as a partner offered the required know-how. As an expert in intralogistics, Jungheinrich was responsible for the planning, development and implementation of the entire intralogistics system in both phases of construction.

## The requirement

### High degree of complexity in the planning and assembly

For some time, the former central warehouse in Unterschleißheim near Munich, with its 9,000 pallet locations and around 60,000 storage locations for small parts containers, had been unable to meet the needs of Keller & Kalmbach. An expansion at this location was not possible, but the growing demand for warehouse capacity could no longer be absorbed by the smaller branch warehouses in southern Germany. In order to cope with the growth, in terms of both quality and quantity, it was necessary to build a new, modern distribution centre.

In view of the continuing growth of the company's activities, the central warehouse had to be enlarged after five years, without affecting its operation. The extension of the conveyor technology during ongoing operation was very complex, in terms of both planning and assembly. New conveyor systems and two pallet lifts had to be installed in the confined space of the existing warehouse. The construction and test phase required very precise coordination. On the one hand, any negative impact on the three-shift operation had to be avoided at all times and, on the other hand, it was absolutely necessary to meet all deadlines. Despite all this, it was still possible to commission parts of the new warehouse while expansion work was still in progress.

## The solution

### New central warehouse for flexible use, even with changes to the business

In the first phase of construction, the central warehouse was divided into four areas. These were a high-bay warehouse (HBW), an automated small part warehouse (ASW) for cartons, an ASW for trays and a warehouse for bulky goods. The warehouse areas were configured in such a way that it would be possible to respond to future developments with an option to extend. The Jungheinrich WMS controls these areas as well as the complex order-picking processes. The order-picking system works according to the 'goods to operator' principle. Here, the corresponding conveyor system runs from the HBW and the two ASW on several levels. Thus, a high degree of flexibility is achieved by the manual removal and decentralised transfer with the goods and containers being supplied automatically. One special feature was the ergonomic design of the workstations.

In the second phase of construction, the HBW was extended by a total of five aisles. The expansion of the ASW for cartons

by an additional six aisles followed in early 2016. Consequently, the overall materials handling capacity and thus the order-picking output was doubled. This area's concept was especially adapted to business demands of industrial customers. Using eight ergonomic workstations, ordered items are still picked according to the 'goods to operator' principle. Software then calculates the layer formation for the palletising robots and transmits to the Jungheinrich WMS the sequence in which the containers are to be retrieved from a commissioner. The palletising robot ensures flexible order picking, which is able to handle even major orders with little notice and without any problems. In addition, thanks to the robot, employees no longer have to lift containers, some weighing up to 20 kg.

## Customer statement

### Smooth flow guaranteed by trustworthy cooperation

As early as 2009, Dr Ingomar Schubert, Head of Supply Chain Management at Keller & Kalmbach, pointed out that the new central warehouse ensured flexible use even in the event of changes to the business. "In 2014, we needed a relatively large increase in warehouse capacity relatively quickly," Schubert recalls. Regarding the resulting expansion of the central warehouse as well as its sheer scale, Schubert is also impressed by the complexity of the overall system backed by computing and database processes. "The step-by-step commissioning was not originally planned that way. But it enabled us to use the warehouse area even prior to complete commissioning. We were impressed by the trusting collaboration with Jungheinrich over the entire period. We remained on schedule and even below the originally proposed budget. We would be happy to work with Jungheinrich again on any future expansion," praises Schubert.



Dr Ingomar Schubert, Head of Supply Chain Management, Keller & Kalmbach GmbH, Hilpoltstein.

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 **JUNGHEINRICH**

# Automated Guided Vehicle System based on Jungheinrich stacker truck ERC 215a, e-commerce logistics centre, Werne.

Efficient automation of shipping processes.

 **JUNGHEINRICH**



#### Project:

Leading online mail-order company, Werne, Germany

#### Industry:

Mail-order business, e-commerce

#### Task:

Automating previously manually operated transport of pallets from the order-picking area to the packaging workstations along a route of 500 m, including the return of empty pallets

#### Project duration:

07.2016 – 10.2016

#### Services:

- Automated Guided Vehicle System (AGVS) for pallet transport
- Five Automated Guided Vehicles pedestrian stacker ERC 215a
- Fully automated receiving station and pick-up station
- Order generation with tablets and wireless data transmission via Jungheinrich Logistics Interface

#### Most important results:

- Shortening routes and reducing the strain on staff
- High flexibility with possibility for changes to the warehouse layout
- Stand-alone system with short implementation time
- Investment in the system paid off within one year

#### From e-commerce pioneer to online trading giant

Initially offering a selection of books, CDs and videos, the American online mail-order company now sells a wide range of products, including its own electronic devices for media use as well as an integrated sales platform for other companies. In Germany alone, the company operates nine logistics centres, which in some cases enables deliveries within only two hours.

#### Automated Guided Vehicle System in flexible mixed operation with manual vehicles

The Jungheinrich AGVS consists of five ERC 215a Automated Guided Vehicles for loads of up to 1.3 tons. Laser navigation enables precise approach and automatic operation of the receiving and pick-up stations. As standard, all vehicles are fitted with a personal protection scanner and sensors.

#### Installation and IT integration

Before installing the vehicles, a layout was created and the route was measured and illuminated with reflectors. The delivery specification also included a control unit operated by the user via a tablet, using the middleware Jungheinrich Logistics Interface. The existing WLAN infrastructure is used to communicate with the ERC 215a. In addition to its technical commissioning, Jungheinrich also trained the staff using the vehicles in operating the system.

## The requirement

### Reducing transport routes for staff

The aim of the optimisation was to relieve staff of transport-specific tasks such as transporting fully picked goods for shipping. Existing routes were to be used, while also enabling mixed operation of automated trucks, manual trucks and staff. For Jungheinrich as a system integrator, the requirement was to implement a fully automated, safe and highly available AGVS with the option of manual operation that can be flexibly expanded and adapted to the environment if required.

## The solution

### Simple operation and significantly less strain thanks to automated processes

The order pickers start their work with a hand pallet truck and a pallet with an attachment. Once all items have been picked, the completed pallet is moved to the next automated receiving station. The Jungheinrich Logistics Interface software enables the Automated Guided Vehicles to be operated via a tablet. Job orders are easily input via an intuitive dialogue. The next AGV receives and processes the order in a fully automated sequence. The employees then remove the empty pallet from the station and continue their order picking.

## Customer statement

### Short amortisation period and flexible application options

"Our warehouse layout is very versatile and we always look at how we can optimally adapt to customer requirements. In order to maintain this flexibility, we needed a system that was just as flexible," explains Julius Hartje, Senior Operations Manager at the e-commerce logistics centre. Also, the investment in the system was to be paid off within one year. This goal was achieved in addition to a high level of acceptance of the AGV: "Not only have our employees learned how to operate the system, but they can also see how harmonious the processes have become and how the AGVS relieves the physical stress to which they were subjected. And if there is a fault or we need the truck for a different process, the truck can be operated in manual mode at any time."



Julius Hartje, Senior Operations Manager.

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# Manufacturing.

## Solutions for manufacturing logistics.

### Industry 4.0: save time and money with connectivity

Automated Guided Vehicles, intelligent software, comprehensive connectivity – Jungheinrich is well equipped for the challenges posed by the Industry 4.0 megatrend. Benefit from our pioneering logistics solutions as a customer in the field of metal processing, heavy industry or mechanical engineering.

The vision of Industry 4.0 involves a paradigm shift in industrial manufacturing towards flexible structures with autonomous, self-controlling units. Automated and networked intralogistics solutions, such as Automated Guided Vehicles (AGVs), and intelligent software, such as the Jungheinrich Warehouse Management System (WMS), will play a crucial role in this process.

Comprehensive connectivity at all levels is the key to success, regardless of your sector or industry. Connectivity can be equally beneficial to small, medium-sized or large enterprises, which in many cases plan to automate their processes gradually. Are you ready for Industry 4.0? Perhaps you would like some assistance in making the right choices? As a pioneering provider with proven expertise, we are your ideal partner on this journey. We offer customers tailored solutions from a single source – regardless of whether they are from the field of metal processing, heavy industry or mechanical engineering.

# 3

# Jungheinrich WMS with warehouseNAVIGATION for Eppendorf Zentrifugen GmbH in Leipzig.

Clear structure in the warehouse and bundling of information and goods flows.



## Project:

Eppendorf Zentrifugen GmbH, Leipzig, Germany

## Industry:

Life Science

## Task:

Implementation of the Jungheinrich Warehouse Management System (WMS) and configuration of the complete storage equipment

## Project duration:

06.2013 – 02.2015

## Services:

- Jungheinrich WMS and radio data terminals
- Narrow-aisle warehouse
- Automatic miniloader warehouse
- Jungheinrich electric order picker EKX 515
- warehouseNAVIGATION in narrow aisles – with Jungheinrich Logistics Interface

## Most important results:

- Transparent processes
- Clear warehouse structure
- Display of movements and stock in the warehouse
- Time savings thanks to optimised routes

## Liquid handling, cell handling and sample handling

Eppendorf is a life sciences company that develops, manufactures and markets systems for use in laboratories worldwide. The product range includes, for example, pipettes and automatic pipetting machines, dispensers, centrifuges and mixers as well as consumables such as

reaction vessels and pipette tips. With the construction of the new plant in Leipzig with a production area of 5,360 m<sup>2</sup> and a logistics area of 2,200 m<sup>2</sup>, a modern production facility with efficient processes and a focus on the core competencies of CNC technology, final assembly and refrigeration technology was created.

## One-stop intralogistics concept

To ensure optimal and efficient operation of the existing logistics area, a new intralogistics concept was needed. As a general contractor, Jungheinrich impressed with its ability to supply the essential solution components from a single source and to analyse all logistical processes and coordinate them in the most efficient manner.

## Customised warehouse system

By introducing the Jungheinrich WMS, Eppendorf has implemented a holistic solution. All processes, from goods receipt to provision of items for production, are clearly defined. The system not only manages the products but also controls order-picking operations in the warehouse. The tailor-made storage system includes a narrow-aisle warehouse for pallet storage with 4,200 storage locations and a height of 15.5 metres, as well as an automatic miniloader warehouse with 5,848 storage locations. Stacking and retrieval of goods is handled by a reach truck and a tri-lateral high-rack stacker.

## The requirement

### Transparent processes and ordered structure within the warehouse

Initially, the challenge was to analyse and record all logistical processes and requirements, as the company had not previously worked with any warehouse management system. This had resulted in cluttered stock and a lack of overview of relevant key figures. All logistics processes were therefore analysed in detail and subjected to testing in the project planning phase.

The aim of the new logistics system was to create more profitability, process reliability and transparency and the system had to be integrated into the existing sparse storage area. These goals were to be achieved with a warehouse management system connected to the existing ERP system.

## The solution

### Jungheinrich WMS and warehouseNAVIGATION

The two-stage transport procedure in the warehouse is entirely managed by the Jungheinrich WMS. Incoming goods are immediately scanned and recorded before being taken to the transfer station by the reach truck. After logging on to the truck guidance system, the terminal displays information regarding collection of goods and the transfer station to which the goods should be delivered. From here, the articles go to the automatic miniload warehouse or the narrow-aisle warehouse. By this point, the target storage location in the narrow-aisle warehouse is already reserved to prevent overlaps. The storage positions in the narrow-aisle warehouse are managed by exact location and are approached semi-automatically using warehouseNAVIGATION. Thanks to transponders in the ground, the high-rack stacker detects its current position. The position to be approached is then transmitted via the radio data terminal. The Jungheinrich Logistics Interface, specially developed middleware installed on the radio data terminal, is responsible for communication

between the Jungheinrich WMS and the truck and ensures that the information exchanged can be implemented. If a production order is triggered, the ERP sends it to the Jungheinrich WMS. The parts from the narrow-aisle warehouse and the automatic miniload warehouse are then picked and gathered together in a buffer zone before being transferred to production.

## Customer statement

### Process reliability and clear structure

Jungheinrich's total intralogistics solution with the Jungheinrich WMS, Logistics Interface, warehouseNAVIGATION and complete storage equipment has sustainably boosted profitability and process reliability in the warehouse. By optimising the route to the storage positions, an enormous amount of time is saved and searching for the right location is a thing of the past. "The bundling of all information and goods flows by the Jungheinrich WMS creates transparency at every step from goods receipt to the provision of items for production. Each phase is thoroughly documented and key figures presented in a structured manner," explains André Hofmann, Head of Logistics at Eppendorf Zentrifugen GmbH in Leipzig.



André Hofmann, Head of Logistics, Eppendorf Zentrifugen GmbH in Leipzig.


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JUNGHEINRICH



## WMS Series 2, Gasser GesmbH, Austria.

**Fast and simple digitalisation of  
manual warehouse processes.**

**JUNGHEINRICH**

### **Project:**

Gasser GesmbH, Steyr, Austria

### **Industry:**

Metal production and processing

### **Task:**

Initial deployment of the Jungheinrich  
Warehouse Management System (WMS)

### **Project duration:**

04.2016 – 06.2016

### **Services:**

- Jungheinrich WMS Series 2
- Handheld terminals
- Storage labelling

### **Most important results:**

- Simple report execution
- Increased productivity and transparency
- Inventory overview in real time
- Efficient processing of storage and retrieval operations
- Minimised inventory differences

### **Core competence: quality assurance**

Gasser GmbH was founded in 1989 as a service provider for foundries in Rosenheim. With their specialisation and high competence in the quality assurance and repair work of castings, the company has grown rapidly, especially in the field of automotive construction. Their locations in Munich and Steyr have been in operation since 2001. Today the company has more than 40 employees.

### **Digitalisation of manual storage**

Gasser was looking for a way to increase efficiency and transparency, whilst obtaining an accurate inventory overview in real time.

The decision for the WMS was made because of the simple report execution on storage periods and product movements as well as the digitalisation of document-based processes.

### **Jungheinrich – everything from a single source**

Within a few weeks following their decision, Gasser received an integrated complete solution for the warehouse in Steyr with approximately 3,000 storage spaces. This solution includes the Jungheinrich WMS Series 2, a wireless data communication solution and storage labelling.

## The requirement

### Easy solution for reports as well as increased quality and efficiency in the warehouse

Gasser stands for quality and precision, which is supposed to be reflected in their daily warehouse operations. Therefore, their main requirements were the optimisation of processes and increased efficiency. They also put great emphasis on obtaining an accurate inventory overview. Gasser wanted to achieve different main objectives with the use of the WMS. These objectives included an increase in process reliability, accurate inventory management, an increase in traceability and fewer inventory differences. Further, it was particularly important for the customer that the solution was simple and above all quickly installed.

## The solution

### Jungheinrich WMS Series 2 and mobile radio data equipment for error-free warehouse management in real time

Following a requirements analysis, Gasser opted for the Jungheinrich WMS Series 2 to achieve the optimisation and modernisation of the warehouse. In order to make full use of the optimisation potential of the WMS, the decision was made in favour of mobile data terminals (handheld terminals). In addition, Jungheinrich took over the storage labelling. This intelligent and complete solution from Jungheinrich enables reliable, transparent and efficient warehouse management as well as the evaluation of storage periods and movements.

## Customer statement

### The best possible equipment leads to the best possible work results

"When it became clear how much easier and better the management of our warehouse could be by means of software support, the decision for a solution from Jungheinrich was made quickly," said Managing Director Konrad Gasser. "With Jungheinrich, we have a partner who – like us – stands for premium quality. The WMS Series 2 was the perfect solution for us right from the start, because it is simple, attractively priced, ready for use within a few weeks and, moreover, it can meet our individual requirements," Gasser states.



Konrad Gasser, Managing Director, Steyr, Austria.

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 **JUNGHEINRICH**



**Pallet racking system  
and small parts storage for  
Internorm in Damme.  
Equipment solution for  
a new warehouse.**



**Project:**

Internorm, Damme, Germany

**Industry:**

Manufacturing industry

**Task:**

Construction of a new warehouse and increase of storage capacity

**Project duration:**

10.2014 – 10.2016

**Services:**

- Consulting and project planning for complete racking system including: Jungheinrich multi-bay pallet racking with eight aisles and 6,216 pallet positions, four-storey modular racking system with 1,120 shelves and a storage area of 155 m<sup>2</sup> as well as cantilever racking with approx. 870 m<sup>2</sup> storage area
- Jungheinrich ETV Q

**Most important results:**

- Expansion of storage capacity by approx. 4,000 pallet positions
- Comprehensive warehouse planning
- Successful partnership from project planning to implementation

**Plastics technology with expertise and responsibility**

Based in Damme (South Oldenburg), Internorm stands for outstanding technical performance, innovation and

quality. Since 1987, Internorm has been developing and producing high-quality synthetic products with around 200 employees. The product portfolio ranges from rolls and roll coatings to polyurethane plastics, moulded parts and injection-moulded items. With modern and high-performance products, Internorm has now developed into a medium-sized company – with a focus on customised solutions for the international market.

**Market growth as a challenge**

Due to steady growth, Internorm decided to disconnect their production from the storage. Thus, a completely new warehouse with a total area of 4,200 m<sup>2</sup> was built in Damme. Following a requirement and material flow analysis as well as a comprehensive consultation, the decision was made for a combination of wide-aisle multi-bay pallet racking with a modular racking system and cantilever racking.

**Comprehensive warehouse planning by Jungheinrich**

Internorm's choice for the project's realisation landed on Jungheinrich as one of the leading suppliers of racking systems in intralogistics. From the very beginning, Jungheinrich collaborated with Internorm in analysing, planning and then constructing the warehouse and thus developed and implemented a tailor-made racking system.

## The requirement

### Decoupling of production and storage

Thus far, Internorm's production and storage had been combined in one building. With the steady growth in recent years, the existing storage capacity was no longer sufficient. Thus, the decision was made in favour of a new warehouse. In order to achieve greater flexibility and storage capacity, the production is now separated from the storage area. In addition, the storage of plastic products required increased fire safety. Further, besides storing small parts, Euro pallets and longitudinal goods, the storage of grid boxes had to be taken into account, since Internorm uses different loading aids for different customers.

## The solution

### Holistic consulting and tailor-made racking system

In order to increase the overall capacity, a new storage system from Jungheinrich was built on a floor area of 3,000 m<sup>2</sup>. The tailor-made racking system consists of multi-bay pallet racking, modular shelving and cantilever racking, which guarantee both an efficient storage of all goods as well as smooth order-picking operations. In addition, Internorm opted for the Jungheinrich ETV Q, which – thanks to its electric all-wheel drive system – is able to transport loads with a length of up to 8 metres in a space-saving manner.

## Customer statement

### Jungheinrich – an established rack supplier

"As an established rack supplier, Jungheinrich prevailed ahead of several other competitors during the tender," explains Thorsten Trumme, Head of Logistics at Internorm. "The critical factor for choosing Jungheinrich as a partner was their comprehensive consulting and professional cooperation during the entire selection process," says Trumme.



Thorsten Trumme, Head of Logistics, Internorm, Damme, Germany.

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 **JUNGHEINRICH**

## WMS Series 2, PSZ electronic GmbH, Upper Palatinate, Bavaria.

Efficient and future-proof digitisation of manual warehouse processes.

 **JUNGHEINRICH**



### Project:

PSZ electronic GmbH, Upper Palatinate, Bavaria, Germany

### Industry:

Electronics

### Task:

Initial implementation of the Warehouse Management System Series 2 (WMS Series 2)

### Project duration:

03.2016 – 12.2016

### Services:

- Jungheinrich EKX 410 high-rack stacker
- Jungheinrich pallet racking
- Jungheinrich WMS Series 2
- Jungheinrich warehouseNAVIGATION with logistics interface
- Radio data terminals and scanner
- Mobile workstation from Jungheinrich

### Most important results:

- Higher storage capacity through optimal use of space
- More efficient processing of storage and retrieval operations
- Increased productivity and transparency
- Digital stock overview in real time
- Increased process reliability

### One of the market leaders in the industry

PSZ electronic GmbH was founded in 2003 and has its headquarters, including a logistics centre, in Vohenstrauß in the district of Neustadt an der Waldnaab in the Upper Palatinate. As one of the market leaders, the company

produces and assembles tailor-made cable and system solutions for heating and ventilation technology, mechanical engineering, plant engineering, toolbuilding and special vehicle construction, as well as for medical technology companies. PSZ employs around 1,000 people worldwide. The production facilities are located in Germany, the Czech Republic, Albania and Tunisia.

### Responding to challenges quickly and efficiently

By introducing a new and efficient logistics solution, the company wanted to achieve a significant increase in storage capacity and optimal turnover rates in order to be able to react as flexibly as possible to the challenges of the future. As well as a significant increase in efficiency and transparency, the best possible use of space and a precise real-time stock overview, the decision made by PSZ electronic to opt for the Jungheinrich WMS Series 2 was primarily driven by the simple execution of the storage and retrieval of various products as well as the digitisation of paper-based processes.

### Jungheinrich – everything from a single source

After an intensive consultation and project planning process with the Jungheinrich logistics experts, PSZ electronic received a complete solution with a semi-automatic narrow-aisle warehouse with space for more than 5,000 pallets. This includes two EKX 410 high-rack stackers, the Jungheinrich WMS Series 2, a radio data solution and a mobile workstation.



## The requirement

### Best possible use of space and efficient storage and retrieval processes

PSZ is representative of innovative ideas, technical expertise and individually tailored solutions – this should also be reflected in everyday warehouse life. Therefore, in addition to the future-oriented optimisation of the warehouse processes and the increase in efficiency, the focus was on a significant increase in storage capacity. Another key requirement was the mapping and support of the storage and retrieval process, taking into account the enormous variety of products and the resulting diverse requirements in terms of packaging and packaging dimensions.

The primary goals to be achieved through the use of the WMS Series 2 were to increase process reliability, implement precise stock management at storage bin level, increase traceability and reduce inventory discrepancies. PSZ employees should be able to use the solution easily, intuitively and reliably and, above all, the system had to be ready for use by the New Year period 2016/2017 without any complications.

## The solution

### Jungheinrich WMS Series 2 for optimum mapping of the flow of material and information

Following the requirements analysis, the obvious choice was a semi-automatic narrow-aisle warehouse with space for more than 5,000 pallets. The racks are approached by two EKX 410 high-rack stackers. The stackers are equipped with wire guidance, terminals, scanners and warehouse navigation and can be operated intuitively and extremely reliably by warehouse staff. With regard to software, the Jungheinrich WMS Series 2 was selected. This is where all the information is collated. It synchronises the entire complex flow of material and information. This allows the warehouse to be optimally managed and controlled. Thanks to a large number of different modules, the software can be flexibly adapted to changes in the warehouse and is therefore future-proof.

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## Customer statement

### Smart logistics thanks to digitisation of the warehouse

"The system is easy to understand and you can quickly familiarise yourself with the various functions," explains Andreas Prey, Logistics Manager at PSZ electronic GmbH. "Our employees liked our new narrow-aisle warehouse and the Jungheinrich WMS Series 2 right away. Whereas the employees in the old warehouse spent a huge amount of time searching for a specific product, they now know – thanks to the real-time stock management function – what quantity of the corresponding item can be found in which location at any given time. This is all possible thanks to the radio data solution in combination with the Jungheinrich WMS Series 2 warehouse management system. For the first time ever, order processing is paperless. Thus an enhanced overview, increased transparency and an end-to-end ordering process are encapsulated within the WMS. The work is much more efficient and simpler, and the error rate drops to a minimum," explains Prey. "The semi-automatic warehouse makes us even more in tune with our production plants all over the world but also more in tune with our customers and their needs," emphasises the 33-year-old. Andreas Prey is enthusiastic about the cooperation with the team of experts from Jungheinrich: "Everything was perfect from the outset: from the planning phase and the implementation phase to the 'go live' date and the start-up phase overseen by the Jungheinrich experts." Such intense cooperation is rare in this industry and should not be taken for granted.



Andreas Prey, Logistics Manager at PSZ electronic GmbH, Vohenstrauß, Upper Palatinate.

### More information:

[www.jungheinrich.com](http://www.jungheinrich.com)

The logo for Jungheinrich, featuring a stylized red arrow pointing upwards and to the right, followed by the word "JUNGHEINRICH" in a bold, black, sans-serif font.



## Food and beverages. Solutions for food logistics.

### Focus on food logistics: fitness for your supply chain

The food industry with its foodstuffs, beverages and animal feed sectors is one of the largest market segments in the world of logistics, and it is also one of the most challenging. As one of the most experienced and innovative providers of logistics and intralogistics solutions, we have developed powerful solutions in which the food chain configuration is based on seamless information and supply chains, advanced technologies and the highest service quality.

Future trends in the food industry are dictated by automation, speed and flexibility. To enable timely production and distribution of foodstuffs, beverages and animal feed, we have developed suitable logistics solutions offering maximum levels of efficiency, hygiene and safety.

What are your goals: do you want to exploit the full potential of digitalisation? Or perhaps you are interested in networking, transparency and maximum efficiency for your warehouse processes? Maybe you want to find out how the Internet of Things can boost your business models? Whatever your objective, the answer most likely lies in automation and maximum speed. To assist you in achieving your goals, we can provide customised, efficient and flexible warehouse and picking solutions. These can be individually configured to suit any business size, and can also be fully automated with intelligent control on the part of our Jungheinrich Warehouse Management System (WMS). Whatever you opt for, you will always benefit from perfect hygiene, cleanliness and safety. And you can also choose to have everything from a single source.

# 4



## Multi-Depth Storage System for ECS Paneermeel Industrie B.V. in the Netherlands.

Compact storage for a higher  
volume of goods and more  
flexibility in the warehouse.

**JUNGHEINRICH**

### Project:

ECS Paneermeel Industrie B.V., Barneveld, Netherlands

### Industry:

Food industry, producer of breadcrumbs

### Task:

Project planning and realisation of a new racking system for effective storage

### Project duration:

January 2016

### Services:

- Multi-Depth Storage System
- Jungheinrich Under Pallet Carrier
- Channel racking with a total of 3,500 pallet bays
- Jungheinrich radio data transmission systems
- Reach trucks

### Most important results:

- More flexibility for storage
- Improved safety
- Cost-effective storage
- Semi-automatic pallet storage

### High-quality products for customers in the food industry

ECS Paneermeel Industrie B.V. is a daughter company of De Korrel Beheer B.V. The production of breadcrumbs has been one of the key competences of De Korrel Beheer since its foundation in 1994. The company supplies high-quality products to customers in various sectors of the food industry. In essence, these are standard goods, but the portfolio also includes tailor-made, customer-specific

solutions such as special grain size, colour, special mixtures or different packaging units. With today's production volume, ECS is one of the largest European producers in this sector.

### 25 million kilograms of breadcrumbs annually

As a result of the positive development of the order situation towards an annual production of 25 million kilograms of breadcrumbs, the company quickly outgrew its premises and had to lease external warehouses. In order to reduce the storage costs, it was necessary to increase the in-house storage capacity. At the same time, the environmental friendliness could be increased.

### The choice: a Multi-Depth Storage System

For De Korrel Beheer, it was important that the First-In First-Out (FIFO) storage principle was ensured. The solution from Jungheinrich: semi-automation of the new production and warehouse building in Barneveld using a Jungheinrich UPC.

## The requirement

### Increase of goods volume, efficiency and flexibility

The task was, on the one hand, to ensure sufficient rack space for all goods, while at the same time increasing efficiency and flexibility in the warehouse. On the other hand, the First-In First-Out (FIFO) storage principle was to be maintained.

## The solution

### Multi-Depth Storage System for ECS Paneermeel

Previously, the warehouse structure of De Korrel Beheer primarily consisted of drive-in racks. However, the new all-in-one solution, consisting of a channel rack, carrier trucks and shuttles, offers the company a number of advantages compared to drive-in racks. Simple and efficient technology is the basis for cost-effective storage. The new solution enables De Korrel Beheer to achieve a high space density, whilst using semi-automatic pallet storage. The heart of the Multi-Depth Storage System is the Under Pallet Carrier (UPC). The lowering of the pallets by standard fork arms ensures that they can still be stored and retrieved according to FIFO. By using the UPC, the customer ECS Paneermeel Industrie B.V. profits from optimum performance thanks to batch-by-batch channel filling. With the controlling device mounted on the truck, the driver can control the UPC on his terminal while driving to avoid unnecessary waiting.

## Customer statement

### Compact and flexible

"The Jungheinrich Multi-Depth Storage System and the Under Pallet Carrier (UPC) enable efficient and flexible storage of palletised goods in compact channel racking systems. Now we can store a complete batch in a channel without affecting the storage density of the upper or underlying channels. We are much more flexible," company owner John Dokter says, explaining his decision.



John Dokter, Managing Director of ECS Paneermeel Industrie B.V. in Barneveld.

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 **JUNGHEINRICH**



## Multi-Depth Storage System for Adriaan Goede B.V. in the Netherlands.

**Compact storage for increased use of space and more safety in the warehouse.**

**JUNGHEINRICH**

### **Project:**

Adriaan Goede B.V., Landsmeer, Netherlands

### **Industry:**

Food industry, production of egg powder

### **Task:**

Project planning and realisation of a new racking system for effective storage

### **Project duration:**

02.2016 – 03.2016

### **Services:**

- Multi-Depth Storage System
- Jungheinrich Under Pallet Carrier
- Channel racking
- Jungheinrich radio data transmission systems
- System equipment

### **Most important results:**

- Increased use of space
- Semi-automatic pallet storage
- Increase of picking and storage performance
- Improvement of working conditions in regards to the safety
- Long-term cost savings

### **Processing of more than two million eggs daily**

Through decades of experience, the family-owned company Adriaan Goede B.V., which was founded in 1985, has developed into a worldwide reliable and flexible supplier of egg products. The key competences of the company are the production and the supply of spray-dried egg

powders as well as the production of liquid egg products. In total, Adriaan Goede B.V. processes more than two million eggs every day to produce high-quality egg products.

### **Production in stock**

Due to seasonal fluctuations of the market, Adriaan Goede B.V. produces in stock to ensure a high level of delivery reliability for its customers.

### **New warehouse**

The positive development of the demand for egg powder products brought the warehouse capacity of Adriaan Goede B.V. to its limits, which prompted the need for additional storage space. On the company premises of Adriaan Goede B.V., a new warehouse was to be built using the latest technologies to allow maximum utilisation of the existing space.

## The requirement

### Efficient use of space

The challenge for Jungheinrich was clear: it had to be a solution that would increase the storage capacity within the existing space and ensure the storage principle First-In First-Out (FIFO).

## The solution

### Multi-Depth Storage System

Jungheinrich supplied Adriaan Goede B.V. with an all-in-one solution featuring channel racking, carrier trucks and shuttles. Simple and efficient technology is the basis for cost-effective storage. The Multi-Depth Storage System now offers space for 720 pallets, which can be stored according to the First-In First-Out principle in each of the 18 channel racks. "It is not necessary to empty a corridor first to have access to the upper pallets," the owner of Goede's explained.

The implemented all-in-one solution reveals many advantages for the customer such as time savings and increased work safety for the employees. With a controlling device on the truck, the driver can control the UPC on his terminal while driving, thus avoiding waiting times. The work safety of the employees has also improved because there is no longer the need for complex manoeuvring with the truck. At the same time, the number of trucks in the warehouse could be reduced due to the use of the UPC. "Accidents that usually occurred during hectic moments have been completely eliminated," says Goede. The efficient use of space also

enables the company to save on long-term storage costs. The Multi-Depth Storage System has proved to be the best solution for the customer Adriaan Goede B.V., as for other considered alternatives the use of space would have been 10 to 20% less.

## Customer statement

### Jungheinrich as a committed and reliable partner

When Dirk Goede of Adriaan Goede B.V. realised that the available space in his warehouse was running short, he did not hesitate for a moment and immediately contacted Jungheinrich: "We already had Jungheinrich rackings and trucks. Jungheinrich has proved in the past to be a committed and reliable partner," said Dirk Goede, owner of the family business.



Dirk Goede, owner of Adriaan Goede B.V. in Landsmeer.

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# Logistics.

## Storage and transport solutions.

### Everything you need for future-proof, error-free processes

In these times of globalised logistics, cost-efficient outsourcing of services has become standard procedure. We will support you with tailored solutions for your goods and supply chains, with your storage, transport, automation and everything else required to future-proof your logistics processes.

The world of logistics is facing significant challenges in the form of ever-shorter delivery times, growing price pressure and increasingly complex distribution requirements. Year after year, new savings potential has to be identified in this sector in order to survive in a fiercely contested global market. With us at your side, you can look to the future with confidence.

We will help you to implement cost-efficient, time-saving and flexible workflows. In doing so, we will attribute the utmost importance to a seamless and error-free logistics process as well as to the safety of your employees. Our powerful IT infrastructure guarantees efficiency and transparency, for example, in the form of end-to-end shipment tracking.

Do you handle different load carriers, or are you faced with an ever-increasing range of products? We offer tailored logistics solutions for all our partners and are always ready to help thanks to our comprehensive service network.



# Jungheinrich Spare Parts Distribution Centre in Kaltenkirchen.

Jungheinrich genuine spare parts reach any location in the shortest time possible due to optimised warehouse logistics.



## Project:

Jungheinrich Service & Parts AG & Co. KG,  
Kaltenkirchen, Germany

## Industry:

Spare parts logistics

## Task:

Construction of a new spare parts warehouse including racking, vehicles and Warehouse Management System

## Project duration:

12.2010 – 12.2013

## Services:

- Seven-aisle high-bay warehouse with 21,168 pallet locations
- Eight-aisle automatic small-part warehouse with 80,000 container spaces
- Separate storage areas for fast-moving goods, bulky goods and hazardous materials
- Pallet and container conveyor systems
- Various forklift trucks from the Jungheinrich product portfolio
- Jungheinrich WMS and control technology

## Most important results:

- Faster and more efficient spare parts logistics worldwide
- >50% increased productivity in warehouse logistics
- >98% availability
- 24/7 delivery requirements established
- Daily shipping of up to 8,000 spare parts positions

## Jungheinrich – Machines. Ideas. Solutions.

Jungheinrich ranks among the world's leading enterprises in the sectors of material handling equipment, warehousing and material flow engineering. As a manufacturing service and solutions provider of intralogistics, the company provides its customers with a comprehensive product range of forklift trucks, racking systems and excellent services.

## Tailor-made logistics system solutions

In order to meet the requirements regarding reliability, efficiency and warehouse safety, a comprehensive logistics system solution was required, composed of various racking systems, a warehouse control system and connected vehicles via Jungheinrich WMS. This solution created a solid base for the improved fulfilment of future market requirements, such as 24/7 availability and faster and more efficient global spare parts logistics.

## Jungheinrich as a general contractor

As a general contractor for all-in-one solutions, Jungheinrich developed and implemented the central warehouse with in-house resources on the basis of a new logistics concept with optimised spare parts management. This major project was implemented by the Jungheinrich division Logistics Systems. Further, the departments Spare Parts Logistics and Automated Systems as well as the Jungheinrich Sales Unit North were involved in the project and responsible for planning, design and realisation of the automated plant components. In addition, the WMS and the control technology were developed in-house.



## The requirement

### Provision of a global and comprehensive logistics network

Global, fast and efficient spare parts logistics can only be guaranteed by highly automated warehouses and logistics networks all around the world. The spare parts management at Jungheinrich makes ongoing investments to process all orders within 24 hours, covering all time zones. As a result, Jungheinrich has the opportunity to set new standards in spare parts logistics, strengthen its competitive advantage in the spare parts business and expand availability of spare parts for its global customers.

## The solution

### Smooth interaction of Jungheinrich WMS, high-bay warehouse, automated small parts storage and vehicles

In order to optimise the spare parts management, a 31-metre high-bay warehouse as well as an automated small parts storage were installed in Kaltenkirchen near Hamburg. The entire solution totals 22,000 m<sup>2</sup> of storage space, replacing the existing spare parts warehouse and management in Norderstedt. The centrepiece of the automated storage system in the Jungheinrich Kaltenkirchen Spare Parts Centre is a seven-aisle pallet high-bay warehouse with a storage capacity of 21,168 pallets as well as an eight-aisle automated small parts storage with 80,000 container spaces. In addition, the new logistics centre includes separate storage areas for fast-moving goods, bulky goods and hazardous materials as well as a structurally separated export area. These manual storage areas are equipped with Jungheinrich racks. The order picking area consists of ten container workstations and eight combined picking workstations for pallets and container goods, where order-related collection of articles in cardboard boxes, special logistic boxes or on pallets takes place. The individual areas are connected by pallet and container conveyor technology with a total length of more than two kilometres. Furthermore, various forklift trucks from the Jungheinrich product portfolio are in operation.

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## Customer statement

### Jungheinrich sets a new standard in the field of spare parts logistics

In the future, up to 1,000 spare parts can be delivered per hour in three time zones (America, Central Europe and Asia) thanks to the customised logistics system solutions. "This way, Jungheinrich is setting a new standard in spare parts logistics, strengthening its competitive advantage in the spare parts business and improving its spare parts availability to more than 98% for its globally operating customers," said Dirk Schulz, Head of the Customer Service Group at Jungheinrich AG. The 3,800 m<sup>2</sup> office space of the Spare Parts Centre was set up as an open-space office. "The transparent and direct communication paths between employees are clearly advantageous in this open-space concept. Received orders are processed more efficiently so that our customers can get their ordered spare parts faster," says Stefan Brehm, Managing Director, Jungheinrich Service & Parts AG & Co. KG.



Stefan Brehm, Managing Director, Jungheinrich Service & Parts AG & Co. KG in Kaltenkirchen.

**More information:**  
[www.jungheinrich.com](http://www.jungheinrich.com)

 **JUNGHEINRICH**



## **Winkler Logistik GmbH, Ulm.**

### **Process optimisation and increased efficiency with warehouseNAVIGATION.**



**JUNGHEINRICH**

#### **Project:**

Winkler Logistik GmbH, Ulm, Germany

#### **Industry:**

Commercial vehicle spare parts wholesale

#### **Task:**

Integration of the narrow-aisle warehouse into the customer processes

#### **Project duration:**

02.2012 – 03.2013

#### **Services:**

- Narrow-aisle truck with warehouseNAVIGATION
- Jungheinrich Logistics Interface for truck connection
- Reach trucks
- Racking systems

#### **Most important results:**

- 18 to 20% improvement in order-picking efficiency
- Integration into existing IT and logistics processes

#### **Versatile high-quality services**

The Winkler Group is one of Europe's leading wholesalers in the field of commercial vehicle spare parts. With more than 1,400 employees, the company can offer all brand manufacturers an extensive range of spare parts. In order to guarantee the best possible delivery capability, Winkler Logistik GmbH operates a central warehouse in Ulm, among others. The company's core expertise does

not just include fast delivery capability but also the permanently high quality of its full range.

#### **Process optimisation in the narrow-aisle warehouse**

Due to its continuous growth, Winkler Logistik GmbH decided to expand its central warehouse in Ulm. To use the available space to its best possible advantage while retaining rapid access to products, the company decided on a narrow-aisle warehouse with more than 15,300 pallet locations. Jungheinrich was able to meet the requirements of the customer and optimally integrate the narrow-aisle warehouse into the company's already excellent processes. Thanks to high-rack stackers, the Logistics Interface as interface software and the Jungheinrich warehouseNAVIGATION, not only was it possible to further optimise the existing processes but also to guarantee the smooth flow of operations.

#### **Longevity and automatic tracking**

Winkler Logistik GmbH was looking for a supplier which, in addition to delivering reliable trucks, would also be able to supply navigation in narrow aisles without the need for costly barcode scanning. The Logistics Interface and innovative RFID technology offered by Jungheinrich made it the perfect choice.

## The requirement

### Integration into existing processes

Fast delivery capability and high quality are the characteristics of Winkler Logistik GmbH. They are also reflected in the company's impressive overall logistics system. In order to meet the customer's requirements, the narrow-aisle warehouse had to be integrated into the existing processes. The link to the conveyor system was therefore just as important as the precise approach to storage bays in the narrow-aisle warehouse. In order to save valuable time when order picking, it was important to the customer that there is no barcode scanning at the storage bay.

## The solution

### Forklifts, Logistics Interface and warehouseNAVIGATION in synergy

After analysing the existing requirements, Winkler decided on six EKS 312 medium/high-level order pickers and three EKX 515 electric high-level combination picker/stackers from Jungheinrich; the latter truck could also be operated fully automatically. At Winkler, the trucks are operated semi-automatically in the ten-metre-high narrow aisle and have Jungheinrich warehouseNAVIGATION. This innovative assistance system is connected via the Logistics Interface software to the customer's own warehouse management system, so that orders can be forwarded directly on to the trucks. All the operator needs to do is press the accelerator and the high-rack stacker will travel semi-automatically and via the most efficient route to the desired location. The truck is able to orient itself within the aisles using RFID transponders and knows its precise location at all times. As soon as the order is executed and the fork returns to its home position, this information will be combined. The Logistics Interface then reports the conclusion of the order back to the Warehouse Management System. This therefore dispenses entirely with time-consuming barcode scans of the target location.

The RFID technology and the Jungheinrich Logistics Interface also enable the conveyor system at the beginning of the narrow-aisle warehouse to be approached with the Jungheinrich warehouseNAVIGATION system.

## Customer statement

### Increased efficiency due to Jungheinrich warehouseNAVIGATION

Herbert Skala, Logistics Manager at Winkler Logistik GmbH, is convinced of the benefits of Jungheinrich's warehouseNAVIGATION: "Jungheinrich was able to smoothly connect the new narrow-aisle warehouse to our materials handling technology. This has significantly optimised processes in the new warehouse." The fact that the warehouseNAVIGATION works with RFID technology was a key reason for choosing the Jungheinrich solution: "In addition to the longevity of the trucks, the fact that RFID transponders in the floor removed the need for our operators to carry out barcode scans was decisive to the awarding of the contract. This contributes significantly to the improved efficiency of the order picking."



Herbert Skala, Logistics Manager, Winkler Logistik GmbH in Ulm.

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## Rhenus Retail Service GmbH, Minden.

**Automated Guided Vehicle  
for increased productivity  
and warehouse safety.**

**JUNGHEINRICH**

### **Project:**

Rhenus Retail Service GmbH, Minden, Germany

### **Industry:**

Logistics services

### **Task:**

Integration of an Automated Guided Vehicle as a stand-alone solution

### **Services:**

- Automated Guided Vehicle (AGV) EKS 210a
- Transport control software Traffic Manager
- Programming of 18 pick-up tracks

### **Most important results:**

- Increased efficiency and productivity without altering warehouse topology
- 34 transports per hour with a daily volume of 165 to 230 pallets
- Enhanced safety through sensor technology
- Significant reduction in transport damage

### **Improved in-house processes without changes to the warehouse topology**

Rhenus Retail Service is a subsidiary of the Rhenus Group and has been specialising in contract logistics since 2005. The company is located in Minden with a storage area of 35,500 m<sup>2</sup>. In order to improve internal processes while maintaining the same warehouse topology, automation is gaining more relevance, especially since Rhenus Retail Service is known as a service and solutions provider for logistics.

### **Automated stand-alone solution**

An Automated Guided Vehicle without system connection was chosen to avoid links with the existing high-bay warehouse and the other systems.

Since the AGV allows standardised processes, waiting and processing times as well as manual transports are eliminated.

### **Jungheinrich – a competent technology partner**

By performing a test, the company wanted to ascertain whether an Automated Guided Vehicle without system connection would successfully be able to operate. The Jungheinrich AGV provided sufficient evidence that it could. The vehicle was programmed by Jungheinrich and optimised to the local conditions.

## The requirement

### Independent transport solution without connection to the system

The main task entailed the integration of a reliable vehicle into existing infrastructures, without requiring additional areas or traffic routes. Since the AGV does not need any new interfaces, it was able to meet the requirements. Even the challenge of busy traffic areas did not pose any problems for the AGV.

## The solution

### EKS 210a – driverless and safe

The EKS 210a is an automated serial vehicle with a comprehensive safety package. The precise reflector navigation as well as additional sensors allow accurate positioning in the aisles. This required only minor changes to the existing periphery, since the conveyor technology, among other things, could also be used. Standardised procedures eliminate waiting and processing times as well as non-valuable tasks.

## Customer statement

### Precise transport and increased safety

"We are already operating with automated systems, a high-bay warehouse and an unloading facility for shuttle trailers. However, the AGV was our first contact with a driverless vehicle," says Alexander Schüller, Managing Director of Rhenus Retail Service GmbH. According to

Schüller, the involvement of the employees was a key factor for the successful investment in the AGV. "Our employees have accepted the solution with the AGV, because they were included in the project processes right from the start. In the past, they used to transport pallets with counterbalance trucks from the warehouse to the conveyor system of the high-bay warehouse. Today, they contribute their know-how for demanding tasks for which the company needs their experience. The task is to structure the daily incoming goods and efficiently schedule the AGV into daily operations, regarding incoming goods priorities. Additionally, the Jungheinrich AGV is ideal for standardised processes and its application is future-oriented. There is also potential for integrating even more AGVs into the Rhenus world," says Schüller.



Alexander Schüller, Managing Director,  
Rhenus Retail Service GmbH, Minden.

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 **JUNGHEINRICH**



**Complete intralogistics solution for GLX near Berlin.**  
**New distribution centre with tailor-made storage system and optimised picking performance.**

**JUNGHEINRICH**

**Project:**

GLX Global Logistic Services GmbH, Freienbrink, Germany

**Industry:**

Logistics services

**Task:**

Development of a complete intralogistics solution for the construction of a new distribution centre

**Project duration:**

04.2017 – 06.2017

**Services:**

- Jungheinrich pallet rack – type MPR B – with 15,047 storage locations
- Jungheinrich modular racking system with approx. 3,500 shelves and a total of approx. 10,500 storage locations
- 20 Jungheinrich trucks
- Special adaptations for enhanced fire protection

**Most important results:**

- Increase of the volume of goods as well as of the overall capacity
- Maximised order-picking performance
- More efficient processes and shorter picking times

**Medium-sized logistics service provider**

The GLX Group was founded in 1999 and has since become a successfully growing company in the field of Supply Chain Management.

The company provides logistics packages from complete warehousing via in-house and outsourcing solutions to worldwide transport services. With more than six locations and around 250 employees, GLX generates a yearly turnover of approx. 20 million euros.

**Response to changed market conditions**

The strong market growth of the customer Knorr Bremsen caused the GLX warehouses in Berlin-Marzahn and Augsburg to reach their capacity limits. The additionally required storage capacity made it necessary to expand the storage space with the construction of a new distribution centre. Merging the two locations into one new site was not only in line with the specific requirements of the GLX Group but also offered the opportunity to exploit synergies and increase efficiency.

**Jungheinrich - everything from a single source**

For the construction of the new distribution centre, GLX was looking for a full-service provider as well as a single contact person with project responsibility. After a thorough selection phase with strong competition, the customer opted for Jungheinrich, as GLX has already been relying on Jungheinrich trucks for a long time. Together, the two companies developed an entire intralogistics solution for which Jungheinrich supplied all essential components from a single source.

## The requirement

### Increase in storage capacity and efficiency

GLX's investment into a new distribution centre resulted from the two locations in Berlin-Marzahn and Augsburg reaching their capacity limits. By building the new distribution centre, the goal was to significantly increase the storage capacity. During the planning phase, Jungheinrich together with GLX analysed all logistics processes in detail. The greatest challenge turned out to be the enormous range of products that had to be stored. Besides an efficient storage process, GLX also expected fast and flexible retrieval processes for every individual order-picking operation.

## The solution

### Complete intralogistics package

The new and 15,000 m<sup>2</sup> large distribution centre is located southeast of Berlin, from where GLX is now operating the European HUB for its clients' spare parts logistics and after sales services. A special feature of the Jungheinrich solution is the modular racking system. Here, small casks and containers are stored and retrieved in four aisles with about 10,500 storage spaces, being operated by two inductively guided Jungheinrich vertical order pickers of the type EKS 210. Additionally, the modular racking system offers a special solution for fire protection to prevent the use of a rack sprinkler system. The Jungheinrich solution also includes a wide-aisle heavy-load pallet racking system with approximately 15,000 storage spaces, which is operated by reach trucks. In total, 20 Jungheinrich trucks are used for transporting within the warehouse, which is 140 metres long and 110 metres wide.

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## Customer statement

### Jointly developed solution – from beginning to end

"From beginning to end, the entire solution was developed together with Jungheinrich," explains Roland Becker, Managing Director of GLX Global Logistic Services. "The Warehouse layout and material flow are perfectly adapted to our requirements. Jungheinrich provided a complete intralogistics package and we are now benefiting from a tailor-made storage system including an innovative order-picking system," says Becker. And GLX is already planning for the future. "We are planning to equip our vertical order pickers with the Jungheinrich warehouseNAVIGATION, which is directly connected to the SAP system. Jungheinrich has already delivered the necessary components for the installation of the warehouse navigation system."



Roland Becker, Managing Director,  
GLX Global Logistic Service GmbH, Freienbrink.

### More information:

[www.jungheinrich.com](http://www.jungheinrich.com)

 **JUNGHEINRICH**

**ISO 9001** The German production facilities  
**ISO 14001** in Norderstedt, Moosburg  
and Landsberg are certified.

**CE** Jungheinrich trucks  
conform to the European  
Safety Requirements.

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