White paper.

# Is your warehouse safe enough?

**360°**

JUNGHEINRICH

# Contents.

# Safety first – how safe is your warehouse?

**Is your warehouse increasingly experiencing collisions with trucks, injuries to employees and damage to goods? Or has your business been a victim of a cyber attack? Then now is the time to take appropriate action to increase the long-term safety and security in your warehouse.**

Did you know that a warehouse environment in which skilled employees work is full of hazards posed by racks, machines and trucks?* Why is that? And what can you do to avoid accidents, injuries and, in extreme cases, deaths in your warehouse? The first step should be to familiarise yourself with the potential hazards and necessary safety measures within your working environment. As well as observing safety rules and regulations, there are various actions that you can take to increase the level of safety in your warehouse systematically.

360° protection for employees, goods, infrastructure and data, system solutions for reliable cyber security, assistance systems for increased safety in day-to-day warehouse practices – this white paper provides you with valuable information on how to improve safety and security within your warehouse. Use appropriate safety solutions to boost efficiency and worker satisfaction within your company and avoid unnecessary costs resulting from downtime and accidents.

\* Source: German Social Accident Insurance (DGUV), 2019
https://www.bito.com/en-gb/expert-knowledge/article/
avoiding-accidents-in-warehouses/

# Identifying and minimising risks.

**The processes that are employed within modern logistics are not only highly dynamic but also involve a great deal of risk. Create ideal conditions within your warehouse environment for your employees for effective avoidance of accidents, equipment damage and loss of data.**

Modern logistics are shaped by processes that often run simultaneously and intersect each other: storage and retrieval of goods, packaging and transport, quality control. This often highly networked human-machine collaboration increases the risk of accidents in many areas, such as when transporting heavily laden pallets or when removing goods from high rack compartments.

Appropriate safety solutions are a reliable way of preventing accidents, property damage and costly operational damage. Safety solutions such as an intelligent Warehouse Management System and Fleet Management

System or assistance systems in trucks are investments that pay off and help create added value for truck, process and warehouse costs. Increased safety not only boosts delivery reliability and productivity; it improves throughput performance and efficiency in your warehouse too.

PROTECTION OF PEOPLE

PROTECTION OF DATA

PROTECTION OF INFRASTRUCTURE

PROTECTION OF GOODS

# The most common dangers.

Be they manual or automated – working processes within a warehouse are constantly increasing in speed and complexity. With these also rises the potential for risk. It is therefore high time that you put your logistics and warehouse infrastructure on the test bench. Is your business meeting current safety standards? Or are there risks that you need to tackle through appropriate actions?



### THE SAFETY CHECK.

You should always keep an eye on the following five risk areas.
Go round your warehouse and ask yourself these questions:

#### 1. COLLISIONS.
Is there a risk of collisions or personnel having accidents, such as feet being run over by forklift trucks or other industrial trucks?

#### 2. FALLING GOODS.
Can transported and stored goods fall from the rack and cause injury to your employees or damage to your stock?

#### 3. TIPPING RACKS.
Are there incorrectly loaded, defective or improperly secured racks in the warehouse that pose a safety risk?

#### 4. STRAIN.
Do the working conditions in your warehouse cause strain to the body, e.g. back and knee complaints? Is there potential to automate processes?

#### 5. DATA THEFT.
Does your IT infrastructure offer sufficient protection against cyber attacks or are there risks in relation to your data security?

# From risk to solution.

Driver training, smart assistance systems, automation to relieve your employees – a wide range of solutions is available within intralogistics to maximise safety in your warehouse whilst also boosting efficiency, raising productivity and improving cost control.

## ACTIONS TO INCREASE SAFETY.

Our solutions to combat the most common risks within the warehouse:

### 1. DRIVER TRAINING AND REGULAR INSPECTIONS.

Truck inspections and maintenance avoid truck wear and accidents, whilst live or VR-simulator driving training and truck training increase safety for your employees when trucks are in use.

### 2. ANTICIPATORY SAFETY AND ASSISTANCE SYSTEMS.

Sophisticated safety solutions are available, from a digital camera system to load and speed management, with the aim of mitigating risk in the warehouse. Find out more in the section on assistance systems.

### 3. PROFESSIONAL RACK INSPECTION SERVICE.

Ensure safety at all levels with an annual rack inspection in line with European standard EN 15635, which takes place with no disruption to ongoing operations.

### 4. TARGETED AUTOMATION.

360° safety sensor system for personal protection or warning and protection fields for safe travel ensure that humans and machines can work together without danger in an automated warehouse.

### 5. CERTIFIED DATA SECURITY.

To prevent cyber attacks on your proprietary system and protect your data, you should use only TÜV-tested software solutions certified to ISO/IEC 27001.

# Warding off cyber attacks.

**As networking and digitalisation become increasingly commonplace in the warehouse, solutions to ensure data security and protection against downtime should form a key component of any future-ready safety and security concept. Use certified security and system solutions to protect your data and your infrastructure.**

**34,740**
passwords cracked per minute

**579**
attacks per second

Digital networking is the key to increased safety in the warehouse. This is particularly true where reliable avoidance of collisions with pedestrians is required in areas where both manual trucks and Automated Guided Vehicle Systems operate. The feedback of all motion detection in real time allows the system to orchestrate the safe interaction of people, equipment and warehouse environment, resulting in an optimal space where manual and automated processes can co-exist.

But how secure are the assistance and safety systems from outside attacks? One thing is certain: the threat is continually intensifying. According to a current Microsoft Security study, cyber criminals try to crack the passwords of IT users 34,740 times a minute worldwide. That amounts to 579 attempts per second. There are 1,902 attacks per minute targeted at IoT devices and infrastructures*, including networked machines, production systems and sensors, but also smart domestic appliances and vehicles.

Warehouse Management Systems from Jungheinrich are therefore certified to ISO 27001 and thus meet the highest safety standards. They are designed to be

inaccessible via the Cloud or by generally accessible WLAN; they run on customers' servers. This provides the best-possible protection against external attack.

The same IT-security precautions are applied to the proprietary infrastructure in the warehouse as to the network overall. Cyber-security experts at Jungheinrich therefore recommend that software is kept up to date at all times. The systems within the warehouse should also undergo regular maintenance.

Equally important is the need for stringent use management aimed at ensuring system security. As a general rule, only authorised users should have access to the system. The constantly updated connection to the firewall, along with anti-malware measures, also ensure that only checked and approved data records have access to the network.

* Source: Microsoft Security, "Cyberthreat Minute", 2022
  https://www.microsoft.com/en-us/security/business/security-insider/
  threat-briefs/cyberthreat-minute-2022/

# Key safety solutions and assistance systems at a glance.

## 360° SAFETY SENSOR SYSTEM.

Comprehensive scanning system for all-round personal protection in areas of mixed use to provide maximum safety in areas containing both people and machines.

## addedVIEW CAMERA SYSTEMS.

Whether you choose a 360° camera system, reverse-travel camera or fork-arm camera, digital camera systems help your employees to manoeuvre safely and with precision in the warehouse.

## zoneCONTROL.

Radio-based system that uses acoustic and visual signals as a targeted way to mitigate danger in critical zones of the warehouse, and also offers the option of controlling travel speed.

## curveCONTROL.

Safe cornering every time: curveCONTROL brakes the truck automatically when cornering according to the load and the angle of the steering wheel.

## operationCONTROL.

Recording of the load weight and the lift height as well as an automatic check of the residual capacity to provide a timely warning of overload during storage operations.

## warehouseNAVIGATION.

The target position is sent directly from the Warehouse Management System (WMS) to the truck controller to increase process reliability and reduce the error rate.
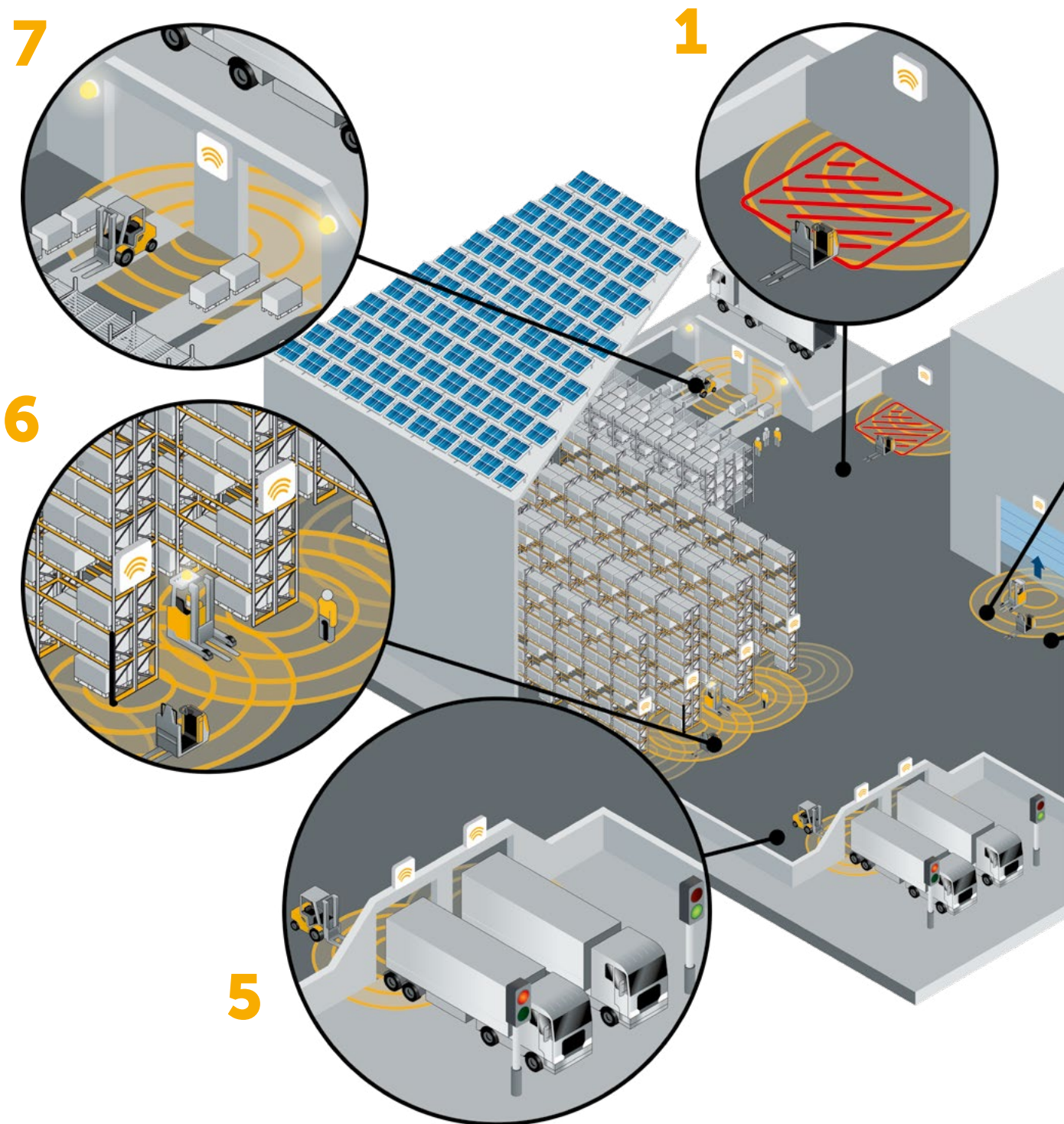
## Floor Pro.

Floor Pro vibration damping reliably reduces truck vibrations on long travel paths, uneven ground and at great lift heights.
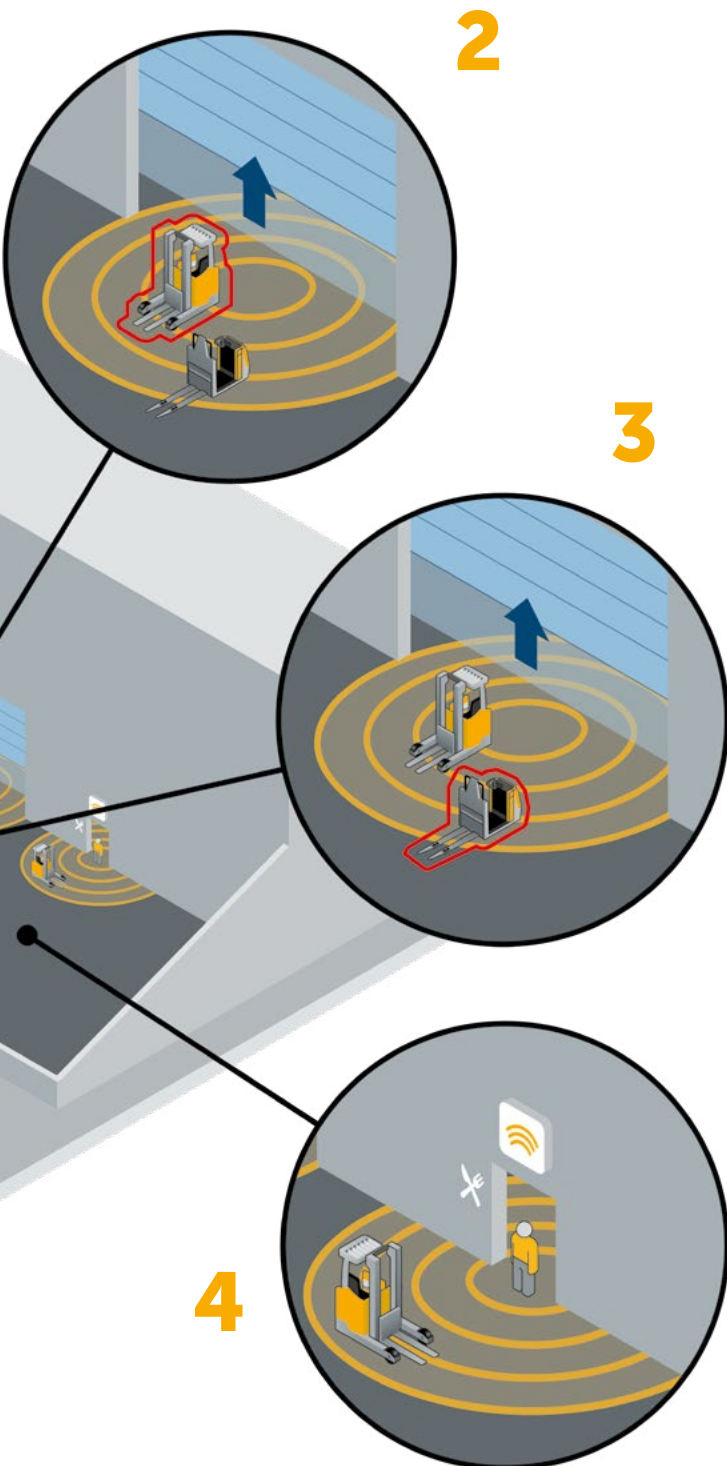
More information of all our safety solutions and assistance systems:
https://www.jungheinrich.co.uk/services/health-safety

# Everything under control.

zoneCONTROL helps you to make critical warehouse areas safe.

## 1. NO DEPOSITING.

A notification on the display informs truck operators where they are not allowed to deposit goods.

## 2. CLEARANCE PROTECTION.

Setting off initiates the following steps in succession:
1. The display indicates the maximum height
2. The door opens
3. The truck adopts slow travel

## 3. AREA MANAGEMENT:

1. No-entry notification on display.
2. Door remains closed.
3. Truck adopts slow travel.

## 4. ENCOUNTER ZONE.

Truck adopts slow travel.

## 5. RAMP PROTECTION.

Automatic slow travel for safe loading and emptying; operator informed that loading is still in progress, e.g. via traffic light.

## 6. COLLISION WARNING.

Once a defined number of entities at a junction has been reached, trucks are set to slow travel and warning indicators are activated.

## 7. HIGHLY FREQUENTED ZONES.

As soon as the truck enters the zone, a signal sounds and the speed is reduced automatically.

# Intelligent hazard management.

**Using assistance systems to increase safety not only provides a long-term boost to your productivity; it also creates a safe working environment in which your employees can put their passion and motivation into giving 100%. This is precisely what natural cosmetics producer LOGOCOS has done.**

Natural cosmetics are in demand. The evidence can be seen on a daily basis within the main warehouse of LOGOCOS, a medium-sized cosmetic producer based in Salzhemmendorf in Lower Saxony (Germany). There is intense loading and emptying activity on the ramp, there are junctions with restricted visibility and other critical points for both warehouse personnel and drivers. LOGOCOS has tackled these safety risks head on with Jungheinrich zoneCONTROL, taking the company's processes to a whole new level of safety.

Jungheinrich worked with the logistics experts at the natural cosmetics producer to develop a completely customised solution that delivers a huge reduction in the risk of accidents for those working in the warehouse. The solution pinpoints critical zones and covers them with appropriate measures. These include the use of signals on the trucks, automatic slow-travel mode at highly frequented points and personnel tags, as well as personnel modules for particularly vulnerable employees in hazardous areas.

The results are plain to see: the load on personnel is clearly lightened; they are able to concentrate fully on their core tasks. The radio-based system is also future-ready, as additional functions can be activated at any time with software updates enabling new functions based on the existing hardware to be loaded.

**SOLUTIONS FOR OUR CUSTOMER LOGOCOS:**

- ► Assistance system for the intelligent management of sources of danger within the warehouse.
- ► Acoustic signals, slow-travel mode and personnel tags for accident prevention.
- ► Standard solution across all trucks in use.
- ► New trucks automatically adopt the configured zone functions – without additional on-site configuration.

# Little helpers, huge effect.

**The daily challenges faced within intralogistics are extremely varied. Obstacles at height, blind corners, highly complex material-flow processes – we use our decades of expertise to offer our customers tailored assistance systems for a whole host of applications and situations.**

## NOERPEL RELIES ON JUNGHEINRICH POWERLiNE.

Safety and sustainability are extremely important at Noerpel. With HGV loading via ramps, dark cargo holds and the loading situation in general, the South-German transport and logistics service provider has high requirements when it comes to safety and comfort. Noerpel utilises the latest ERDi POWERLiNE platform trucks to improve ergonomics and agility within work processes, with the lithium-ion technology also delivering an improved carbon footprint and increased truck safety. The truck stand-on platform offers protection on three sides; this combines with the automatic adjustment of speed for cornering and ramp travel to deliver the highest safety standards when it comes to protecting operators and goods.

## SOLUTIONS FOR OUR CUSTOMER NOERPEL:

- ▶ 30 ERD 220i electric platform trucks with integrated lithium-ion battery.
- ▶ 30 quick-charging columns at strategically favourable points in the transfer hall.
- ▶ ERD 220i with spacious stand-on platform and protection on three sides.
- ▶ Sensor-based lights that detect the HGV environment and illuminate the dark cargo hold.

## DIVERTOYS INCREASES SAFETY FOR TRUCKS AND DRIVERS.

Intralogistics 4.0 for Divertoys in Brazil: the toy manufacturer has used the smart networking of software and EKX high-rack stackers to achieve a high level of safety for both trucks and employees. Integrated warehouseNAVIGATION delivers a high level of process reliability, preventing damage to goods and reducing the rate of errors and accidents in the warehouse. The company also particularly appreciates the fact that the drivers feel comfortable when using the trucks: they are benefiting from improved ergonomics, intuitive operation and increased quality of work.

## SOLUTIONS FOR OUR CUSTOMER DIVERTOYS:

- ▶ EKX high-rack stackers with warehouseNAVIGATION.
- ▶ Reorganisation of internal material-flow processes.
- ▶ High level of safety for trucks and drivers.
- ▶ Prevention of damage to stored products and more meaningful warehouse inventory data.
- ▶ Avoidance of order-picking errors.

# A holistic approach.

For a working environment to offer maximum safety, it is vital to have a view of the entire warehouse. 360° protection from Jungheinrich covers all areas of warehouse logistics to create optimal conditions for any situation. Seize the initiative and choose smart safety solutions for full protection in your warehouse — protection for people, goods, trucks and data.

## PROTECTION OF PEOPLE.

Because the health of your employees is of paramount importance to us, we not only ensure that the workplace is designed with ergonomics in mind; we also offer a wide range of safety solutions and assistance systems to protect the most valuable asset within your company, the people, against collisions with trucks and against other accidents. That way your drivers can remain safe at all times and carry out their work efficiently.

## PROTECTION OF DATA.

Data is the basic framework of any modern warehouse — providing networking, control and more efficient processes. The sophisticated software solutions from Jungheinrich are not only tailored to the requirements of intralogistics; they also offer impressive delivery of the maximum safety standards — the optimum basis for establishing a future-ready IoT platform offering full control of processes and data, as well as optimum protection against outside attacks.

## PROTECTION OF INFRASTRUCTURE.

To ensure safe, reliable protection of your processes and valuable capital goods, you need targeted prevention of potential damage to your warehouse equipment. Whether you operate a manual or automated warehouse, we maintain an overview of your trucks and warehouse equipment and protect all components in your warehouse with smart assistance systems and other service offerings such as our rack inspection service.

## PROTECTION OF GOODS.

When you manage to deliver 100% of your goods to their destination without damage, you have met a key criterion for your company's success. You maintain full cost control, you reduce the number of complaints and your customers appreciate you for your delivery reliability. From incoming goods through to outgoing goods, we support you with our solutions so you can identify hazards for your goods and successfully avert them.

# Want to improve the safety in your warehouse? Get in touch to arrange a personal consultation.

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

C E
Jungheinrich industrial trucks meet European safety requirements.

**JUNGHEINRICH**