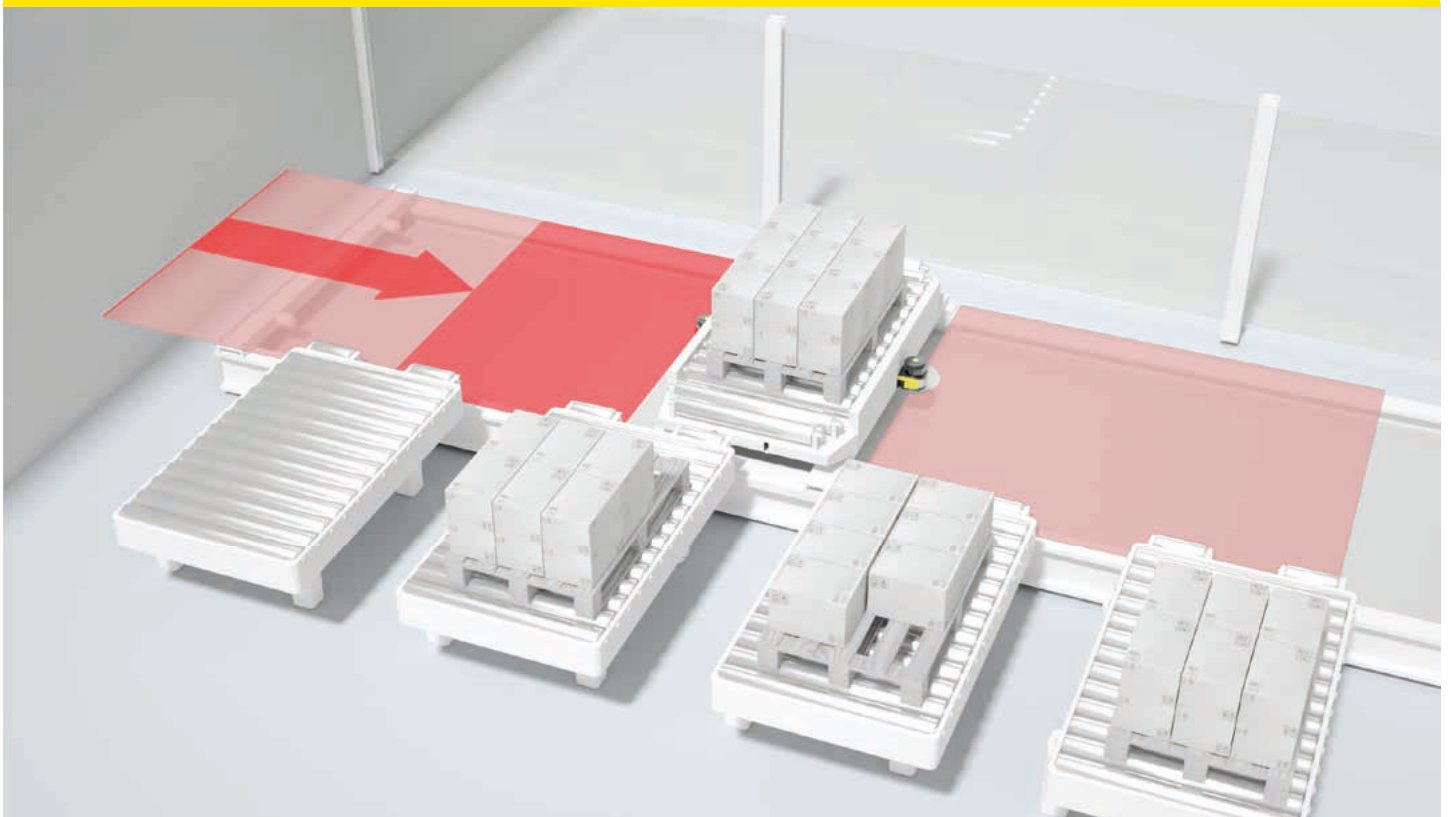


## Safety Solutions

### Area guarding at transfer shuttles

#### Safety at Leuze



### Simple. Safe. Productive.

From risk assessment to validation: our safety solutions provide complete solutions for your systems. The innovative safety concepts of our expert teams ensure efficient material flow, gapless safety and high availability of your system. Even in applications where classic concepts are pushed to their limits. Always with legal certainty, CE certification and compliance with standards.

In high-bay warehouses, transfer shuttles transport the goods between the rack locations and the entry and exit points. Access to this hazardous area must be prevented. Therefore, the aisles are usually separated from the workplaces and the traffic area by fences. The revised EN 619 standard (Continuous handling equipment and systems - Safety requirements for equipment for

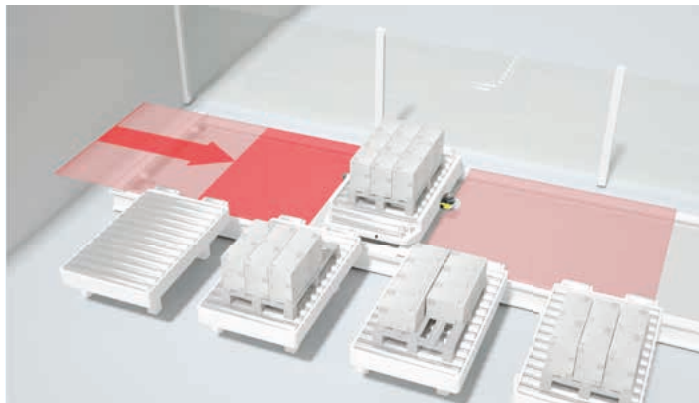
mechanical handling of unit loads) defines which measures are required to consider access to the hazardous area as "prevented". In addition to purely mechanical design measures, electro-sensitive protective devices that trigger a stop of the movement can also be used for this purpose. This offers more flexibility in the design of the system and the goods that can be transported.

Our safety solution is based on the requirements of the revised EN 619 and improves the level of safety throughout the travel range of the transfer shuttle as well as during possible service activities. The system operates autonomously and can be easily integrated. At the same time, all options for optimizing handling performance are retained, as the entire length of the aisle can be used and the speed of the vehicle is not limited.

## Area guarding at transfer shuttles

### Requirement:

The transportation path of the transfer shuttle is to be monitored for the presence of persons by using safety laser scanners. To ensure optimal use of the floor space available, the shuttle has to move up to close to the wall. For this purpose, the protective field of the safety laser scanner must gradually be reduced as the shuttle approaches the wall.



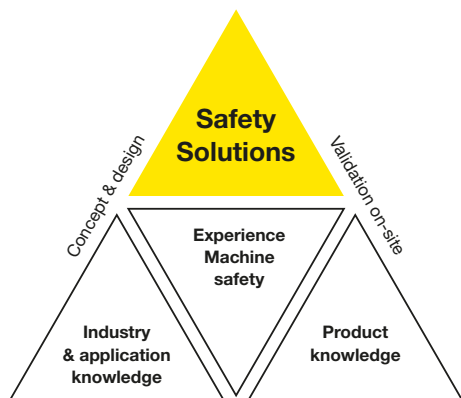
**Solution:** An area guarding system with a safety laser scanner is installed on both direction of the shuttle. The autonomous system detects when the shuttle is approaching the adjacent wall, and automatically reduces the size of the protective field of the safety laser scanner.

## Advantages for you

- Improvement of the safety concept across the entire travelrange of the transfer shuttle with consistently high system performance
- Easy integration: The systems operates autonomously and do not require any signal from the transfer shuttle
- With their two-channel safety output the systems can be easily integrated into the safety circuit and are also easy to retrofit
- Supports also operation of two shuttles in one aisle

## Working principle

A safety system with a safety laser scanner is installed on the transfer shuttle for each direction of travel. This secures the area in front of the transfer shuttle in the rack aisle. The scanner detects the presence of people and objects and can thus initiate a safe stop. In addition, it detects the approach to the end of the aisle. The control system uses this information to adjust the protective field: when approaching, the protective field is reduced, and when moving away, it is increased again. The entire process is monitored for safety and has no influence on the speed of the transfer car.



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## System components and safety parameters

Safety sensors: safety laser scanner RSL 400
System control: safety control MSI 400
Leuze safety program
PL d in accordance with ISO 13849-1, SILCL 2 in accordance with IEC 62061
2-channel safety output

## Your partner for professional safety solutions

For more than 35 years, we have been supporting safety-related applications in different industries by offering a broad range of products. Our certified safety experts have extensive experience in designing safety concepts and comprehensive knowledge of the latest norms and standards.

In the projects, we accompany you from the risk assessment up to the safety-related acceptance. Our teams make sure that our solution meets your requirements and ensure that your project runs smoothly.

## Complete solutions – Tailored to your needs

Our solutions are based on qualified safety concepts which, if necessary, can also be extended or created new. Every solution is individually tailored to your system layout and includes

- All necessary hardware and software components
- Engineering services, such as PLC programming and configuration according to project requirements
- Comprehensive, CE-compliant documentation
- Start-up support
- Validation of the safety function



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