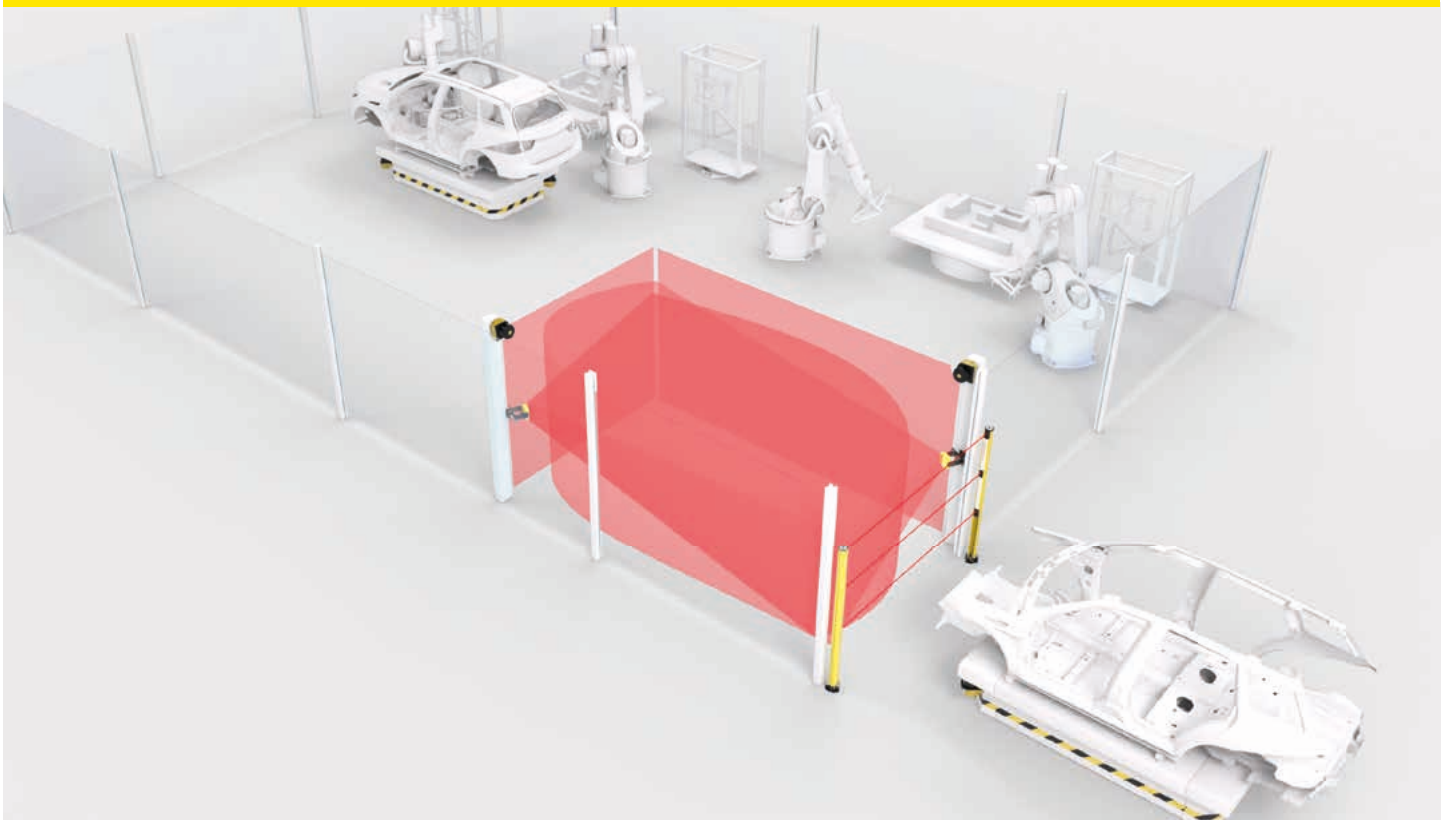


## Safety Solutions Bidirectional AGV lock for access guarding

### 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. This makes implementation extremely easy for you.

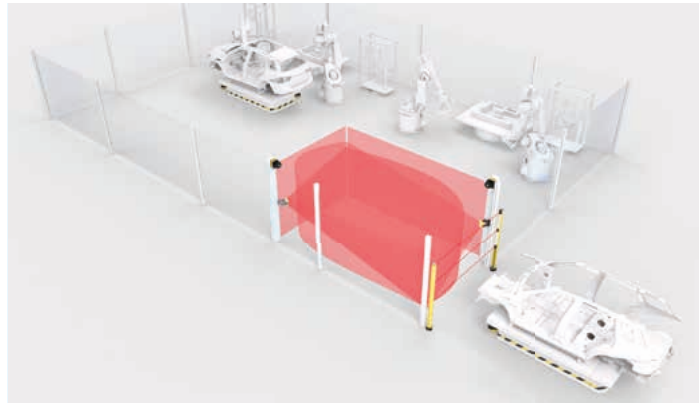
Highly automated and interlinked production systems often require a flexible material flow between the individual manufacturing cells. In such cases, automated guided vehicles (AGVs) take over material transport. The AGVs must reliably enter and exit at the transitions between the travel path and cell.

At the same time, access to the cell must be safeguarded. For the safety concept, this requires holistic consideration of all process steps: for example, the size and shape of the load change as the production process progresses, and stopping of the AGV at the transition between the traffic path and danger zone, which is triggered by the on-board protective devices, must also be taken into account.

Our safety solution meets precisely these requirements: as a bidirectional AGV lock, it guards access to the danger zone fully and without gaps. The transportation paths of the AGVs are not restricted, and there are no additional costs for controlling moving protective devices or fixed hard guards.

## Bidirectional AGV lock for access guarding

**Requirement:** The extensive danger zone must be safe-guarded against access by persons. At the same time, AGVs with different loads must be able to enter and exit the danger zone. The transportation path of the AGV inside the production cell must not be restricted by the access safe-guarding system.



**Solution:** A safety lock has optoelectronic safety sensors on three sides. This allows the AGV's transportation path toward the danger zone to be freely selected. Safety radar sensors check whether persons are present within the lock area. After a corresponding release has been given, the AGV can continue its journey.

### Advantages for you

- Gapless safety during the entire cycle without restricting parts transport (for loads of any shape and size)
- Optimum utilization of the system through interruption-free operation, even when the AGV is entering and exiting
- Free routing of the AGV's transportation path toward the danger zone because no hard guards are necessary
- No operator action or visual checking of the lock area necessary

### Operating principle

After interruption and subsequent release of the multiple light beam safety device on the access side, radar sensors monitor the lock area for the presence of people. Release for the AGV to continue its journey (enter) or for readiness to receive the next AGV (exit) is only given if no persons have been detected in the lock area. The system monitors whether the processes are being performed correctly in terms of safety, and also enables a temporary stop in the adjacent protective fields. In addition, release signals for automated movements are also provided.



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### System components and safety parameters

Safety sensors: MLD 500 multiple light beam safety device, RSL 400 safety laser scanner, LBK safety radar system
System control: MSI 400 safety control
Leuze safety program
PL e in accordance with EN ISO 13849-1, SILCL 3 in accordance with IEC 62061
2-channel safety output

### Your partner for professional safety solutions

For more than 30 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 the design of safety concepts and have detailed knowledge of current norms and standards.

We support you throughout the project, from risk analysis to 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 safety 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 control programming and configuration according to project requirements
- Full, CE-compliant documentation
- Start-up support
- Validation of the safety function



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