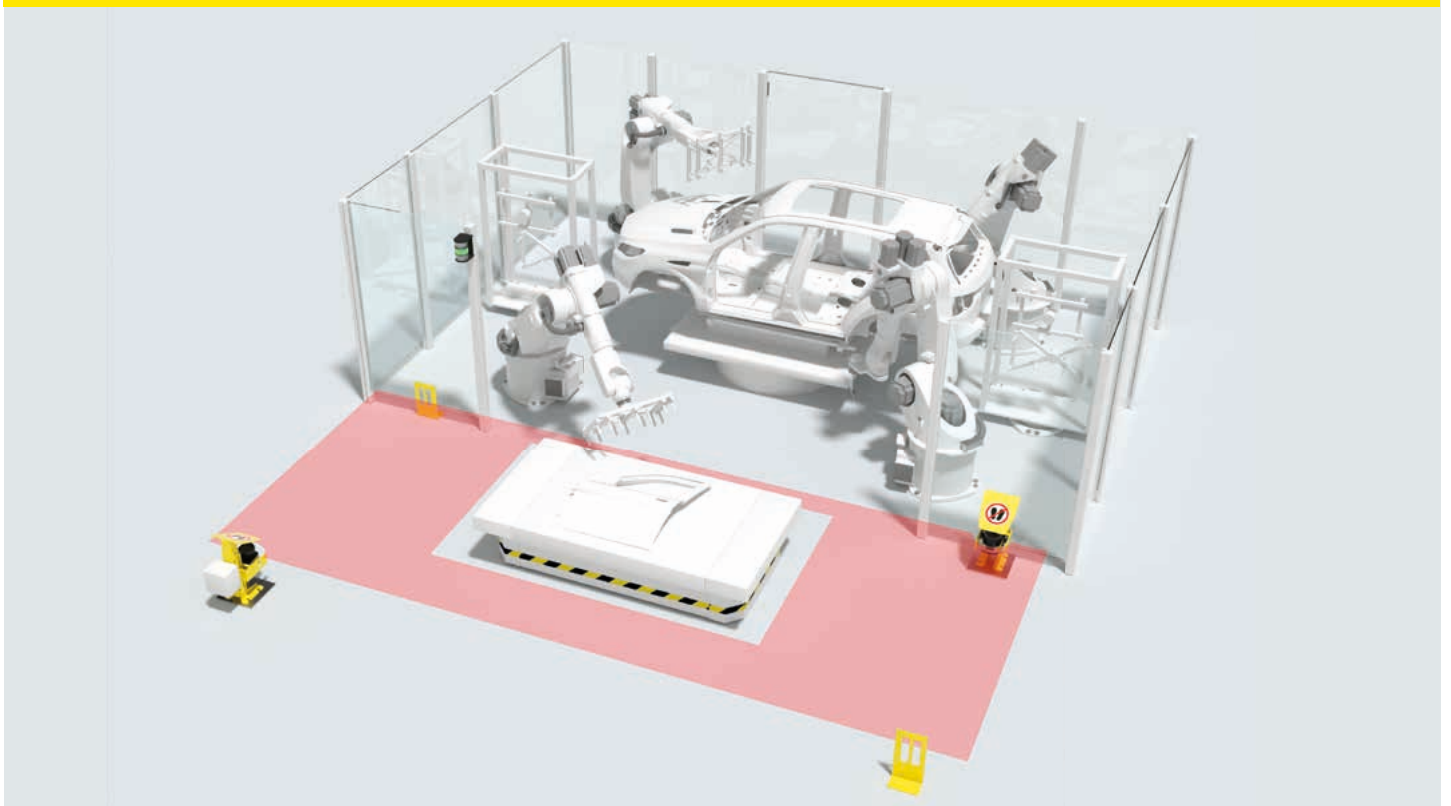


Safety Solutions Safeguarding of Robot/AGV transfer stations

Safety at Leuze



Efficient material flow and maximum safety

The increasing automation of machines and systems places growing demands on safety concepts. Classic concepts such as muting are often pushed to their limits here. Our innovative safety solutions guarantee gapless safety, efficient material flow and high availability of your system, even with automatic processes.

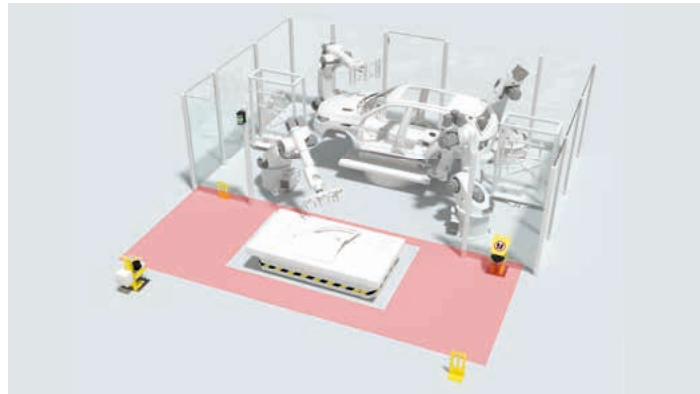
At the transfer stations of AGVs (automated guided vehicles) and robot cells, all movements during a station cycle must be taken into account when creating the safety concept. This also requires a comprehensive consideration of the safety functions during entry of the AGV into the station, upon reaching the transfer

position and when exiting the station. AGVs are – in their own right – safeguarded through their integrated safety functions (e.g., with the RSL 400 safety laser scanner). Through the use of safety sensor technology, robot cells detect whether a person is approaching the dangerous area. However, for an automated transfer of material between AGV and robot applies: all of these safety systems must cooperate with one another to ensure safety at all times over the entire cycle.

It is precisely this concept of cooperation that forms the basis of our safety solution for robots/AGV transfer stations.

Safeguarding of robot / AGV transfer stations

Requirement: The danger zone of the robot and the working range of the transfer station should be safeguarded against entry by persons during the entire process. The vehicle should be able to enter and exit the work area fully automatically.



Solution: The entire area of the transfer station is safeguarded with safety laser scanners. Their protective fields detect the access and presence of people. As the vehicle passes through, the outline of the AGV is dynamically blanked from the protective fields. In this way, the station remains optimally safeguarded at all times.

Working principle

The safety laser scanners safeguard access to the robot cell through their protective fields. At the same time, they detect the position of the AGV in the monitored area. The safety solution uses this information to blank out the contour of the AGV from the monitored area by changing over the protective fields. The AGV is practically "enclosed" by the protective fields. This allows the AGV to automatically move into the station, transfer the material at the parking position and then again exit the station. The safety level is maintained during the entire cycle.

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
- Start-up support
- Validation of the safety function
- Full documentation



Your benefits

- Monitoring for the entry and presence of persons
- Gapless safety during the entire cycle
- No restrictions during part transfer, e.g., for parts that protrude at the front or side
- Autonomous system, simple safety integration
- The pre-developed safety solution is individually adapted to your application



System components and safety parameters

Safety sensors: RSL 400 laser scanner
System control: Siemens SIMATIC S7
Leuze safety program
PL d in accordance with EN ISO 13849-1, SILCL 2 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 designing safety concepts and comprehensive knowledge of the latest norms and standards. Benefit from our know-how: in projects, our expert teams accompany you from the gathering of the requirements up to the safety-related acceptance. They make sure that our solutions meet your requirements and ensure that projects run smoothly.