



DIGITAL MANUFACTURING

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<https://www.suva.ch/fr-CH/materiel/fiche-thematique/vehicules-de-transport-autoguides-agv-suva>

English Summary

Automated Guided Vehicles (AGVs)

- Automated guided vehicles (AGVs) are electrically driven, self-driving industrial trucks for transporting goods.
- Although AGVs are safe in principle, they can pose a hazard if they share workstations and travel paths with employees or cross other means of transport.
- Inadequately maintained AGVs and travel paths can lead to serious accidents and damage, especially when manoeuvring, in storage, loading and unloading zones.
- When using an AGV system in the company, the safety of employees is the top priority. Binding traffic rules and emergency scenarios as well as active and passive safety systems limit the risk of accidents to a minimum.

Valuable helpers, but not without risks

Automated Guided Vehicles (AGVs) are motor-driven, self-controlled industrial trucks for the automated and repetitive transport of goods in clearly defined industrial environments. AGVs are usually designed for a specific type of goods. Sometimes they are standard material handling vehicles that have been modified for driverless operation. Commonly used control techniques for AGVs are guidance lines, laser or magnetic navigation.

In order to guarantee safety, the automated vehicles should ideally move in a specially designated, separated area (so-called "secured zone"). This zone may only be entered by authorised persons to repair breakdowns. However, installing such a system in an existing working environment makes this separation difficult, if not impossible. In this case, further measures must be taken to ensure the safety of workers. As early as the planning phase for an AGV, it is therefore important to consider not only the infrastructure, constraints, traffic routes and production steps, but also the safety of the employees.

Dangerous situations

The use of AGVs in operations poses a potential danger to people, especially when AGVs and employees work together and in adjacent activities. For example, in the following situations:

- when AGVs and persons work together or share work steps.
- when the workplace of persons is close to or on AGV travel paths
- when persons cross AGV travel paths
- when AGVs and human-controlled means of transport share travel paths.

AGVs can make independent movements during work, such as moving forwards and backwards, turning, lifting, lowering, loading and unloading. This mainly results in mechanical hazards such as collisions with persons or crushing between AGVs and fixed or moving elements (e.g. other motor vehicles).

AGV loaded with a paper roll

Since AGVs are used for transporting loads, they are equipped with special systems for picking up goods such as pallets, rolls, containers, etc.. As a result, the hazards vary according to the pick-up devices. Falling objects cannot be ruled out either. Dangerous situations can arise as a result of improper behaviour or inattention on the part of workers, technical malfunctions or floor conditions (wet, uneven, slippery, sandy, etc.). Other hazards arise in connection with maintenance work on the automated vehicles or the maintenance of equipment located on the AGV travel paths.

This is how you protect your employees from serious accidents:

- Safe infrastructure and systems
- Organisation of traffic routes and workplaces
- Attention during load transfer
- Active and passive safety systems
- Rules of cooperation, behaviour and traffic
- Stop and manual control of AGVs
- Maintenance
- Legal and standards

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