

Solving Movers

AUTOMATED GUIDED VEHICLES



Automated guided vehicles (AGVs)

Solving AGVs

Solving AGVs are customised driverless vehicles designed for repetitive, continuous, safe and accurate material handling. AGVs are suitable for handling loads weighing from a few kilograms up to a hundred tonnes or more. Multiple navigation systems are available; one or more are selected to suite the operating environment.



Operation

Solving AGVs are designed for continuous operation in industrial environments to move loads long distances and serving automatic production lines.

The AGVs are fitted with an HMI for quick and easy interaction with the operator. The AGV system is controlled by a fleet manager that can be connected to the customer's VMS or ERP.



Designed for continuous operation the Solving AGVs contribute to more efficient production.

Safety systems

Solving AGV Movers are equipped with the latest safety systems to avoid collisions or injuries, such as:

- speed dependent laser scanners for person safety
- audible/visual warning signals and emergency stop buttons also guarantee safety for personnel and load



Upgrading older AGV control systems extends the life of the AGVs by ten years or more.

Advantages and examples of Solving AGVs



Advantages

- integral safety systems such as bumpers, lights and emergency stop buttons ensure a high level of safety
- production is made more efficient because the vehicle works continuously, 24-hours a day
- less damage is caused to products during handling
- a clean and safe working environment can be achieved which reduces the risk of work-related injuries
- unmanned operation reduces the labour costs
- monotonous work can be avoided
- short payback period



Examples

Solving AGVs are used in a variety of industries, such as automotive, aerospace, heavy machines, paper and printing, and even shipbuilding. A few examples of applications:

- fork lift AGVs for handling EUR pallets, 1 to 2 tonnes
- AGVs for the assembly of vehicles, 1,5 to 20 tonnes
- AGVs for handling paper reels and cores, 2 to 65 tonnes
- AGVs for moving metal coils, 10 to 30 tonnes
- AGV platforms for loads up to 150 tonnes
- air bearing AGVs for very heavy load handling



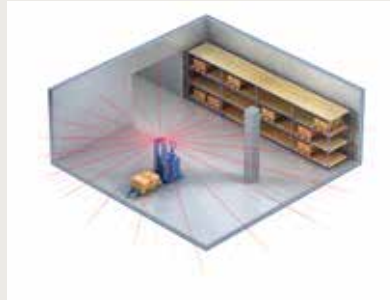
Navigation systems

Different navigation systems can be chosen depending on varying factors such as the customer's requirements, frequency of transportation, existing facilities, cost of installation and future expansion. The most common systems are laser, contour, magnetic spot and magnetic tape navigation described below. Multi-navigation, e.g. a combination of navigation systems is also possible.



Laser navigation

Laser navigation provides the customer with extensive freedom because the AGV does not need any tracks, wires or rails, but can be easily programmed for both indoor and outdoor driving. The driving routes can easily be changed with the software. A rotating laser beam detects reflectors that are placed in the building, and based on these locations the route is calculated in real time.



Contour navigation

Contour navigation utilises objects in the existing environment meaning that all boundaries for controlling AGV driving paths are removed. Installation time is minimal and so costs are reduced and the effect on operations minimised. It is also easy to expand the system and create new AGV paths. Contour navigation is mostly used in combination with an other navigation system.

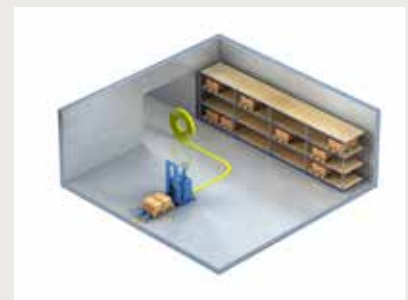


Magnetic spot navigation

Magnetic spots are embedded in the floor and sensors in the AGV are used to detect the spots. The AGV position is updated using measurements to spot magnets. Spot navigation is often used as a complement to laser or contour navigation.

Magnetic tape navigation

The vehicle follows a magnetic tape on the floor. The vehicle movements are tracked and its position is updated continuously. The navigation is active at all times. Tape navigation is only suitable for indoor use.



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