CREATING MOVEMENT

Solving Movers

AUTOMATED GUIDED VEHICLES

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Automated guided vehicles (AGVs)

Solving AGVs

Solving AGVs are driverless vehicles designed for repetitive, continuous, safe and accurate materials handling. AGVs are suitable for handling loads weighing a few kilograms up to a hundred tonnes or more. Different navigation systems can be applied to suit indoor and outdoor use.

Operation

Solving AGVs are designed for continuous industrial operation, for moving loads long distances and serving automatic production lines. Control systems are usually fitted with a graphic PC display and integrated memory for registering tasks and events to facilitate fault finding. All service positions are easily accessible and the latest computer technology advises the operators of maintenance

Safety system

requirements.

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

- mechanical bumpers stop the AGV whenever an object is detected
- photo cells fitted to the AGV sides provide safety for personnel when driving around corners
- programmable laser bumpers detect objects and stop the AGV
- audible signals, warning lights and emergency stop buttons also guarantee safety for personnel and load





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





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

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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
- the computer system software allows for quick and easy changes to all parameters, such as speed, start/stop positions and accuracy of location
- less damage is caused to products during handling
- a clean and safe working environment can be achieved
- unmanned operation reduces the labour costs
- monotonous work can be avoided









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
- air bearing AGVs for really heavy load handling, 10 to 120 tonnes



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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. A combination of navigation systems is also possible. The most common systems are laser, wire and tape navigation described below. Natural navigation is the latest navigation system.



Laser navigation

The laser technique 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 within the software. This technology uses the optical triangulation principle; a rotating laser beam detects reflectors that are placed in the building, and based on these locations the hardware installed in the AGV continuously calculates its route in real time. Information is transferred via radio.





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Wire navigation

Wire navigation is a wellproven navigation system where the vehicle follows a wire laid in the floor. Information is transferred via the wire, radio or defined information points to a host computer. Wire navigation can be applied to both indoor and outdoor use.



Tape navigation

The vehicle follows a taped or painted line on the floor via a camera. Information is transferred via radio communication. Tape navigation is only suitable for indoor use.





Natural navigation - the latest navigation system for AGVs



Natural navigation utilises objects in the existing environment instead of navigation reflectors or markers and all boundaries for controlling AGV driving paths are thus removed. Installation time is minimal, reducing costs and minimising the effect on operations. It is also easy to expand the system and create new AGV paths.

Natural navigation is part of Kollmorgen's NDC8 product family of AGV controls.