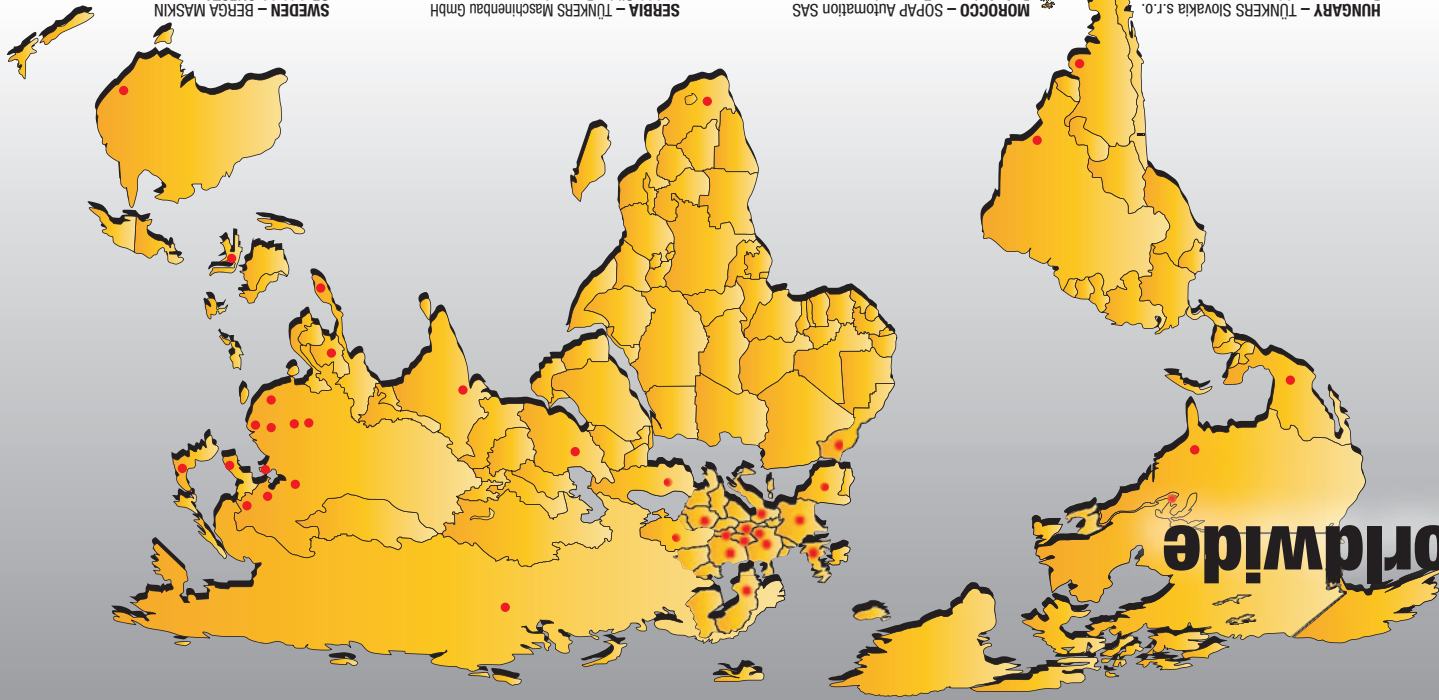


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AUTONOMOUS TRANSPORTING



- 

Spannen
Clamping
- 

Positionieren
Positioning
- 

Greifen
Gripping
- 

Umformen
Forming
- 

Schweißen
Welding
- 

Dosieren
Dosing
- 

Drehen
Rotating
- 

Fördern
Conveying
- 

Transportieren
Transporting

AUTONOMOUS TRANSPORTING

TÜNKERS expertise in E-mobiles

TÜNKERS has manufactured electric mobiles for logistics for more than 40 years now. One flagship product in this segment is the airport scooter which is used for carrying luggage in international airports including Frankfurt, Düsseldorf, Singapore, Paris and Dubai.

The broad range of TÜNKERS solutions for logistic concepts in automotive manufacturing includes AFS accumulating conveyors, EXPERT shuttles and lift-and-carry conveyors.

The demand for flexibility is continuously increasing. Therefore, the AGV business unit was established in 2016. This business unit closely cooperates with SINOVA, the market leader of Automatic Guided Vehicles (AGVs) in South America.



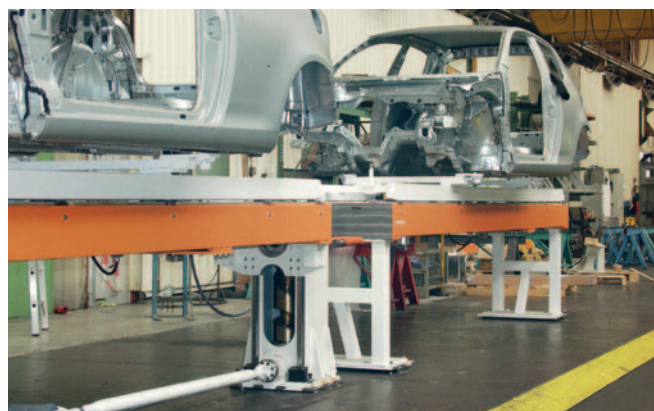
TÜNKERS AGVs are complementing now the automation modul "Transporting", which is one of the 9 modules of automation in the TÜNKERS product range.



TÜNKERS Airport-Scooter



A TÜNKERS Airport-Scooters on site



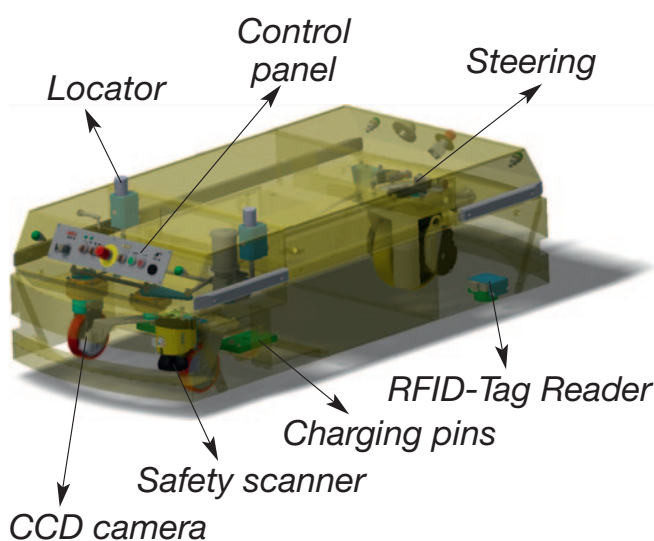
EXPERT-TÜNKERS Lift-and-carry conveyor



AFS accumulating conveyor

Technical data

- Traction >10t
- Payload >2t
- Operating time >8h
- Controlled by industry PC
- Robust design
- Safety scanner
- Speed >1m/s
- Positioning <+/- 3mm
- Fine positioning +/- 0.1mm



Variants:

Tugger AGVs



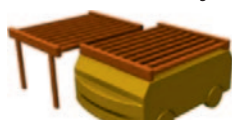
Tugger transporting manually or automatically coupled trailers.

Cart type AGVs



Driving under a loading platform. Fully automated coupling by means of retractable locators.

Roller conveyors



Loads on the AGV are transferred to other rollers by means of roller conveyors.

Forklift



Automated loading of pallets and large load carriers.

Platforms



Platforms on the AGV ensure safe transport of special components in logistic processes.

Navigation:

Induction



Floor wire with frequency of 7 to 12 Hz.

Optical



A CCD camera in combination with a video converter recognizes a track or QR codes on the floor.

Magnet



A control loop follows a magnetic track on the floor. Alternatively, small magnets arranged in a grid in the floor can be used for navigation.

Laser reflection



A laser scanner recognizes strategically positioned reflection tags along a route. The minimum height of the laser scanner is 2 m.

Free navigation



A laser scanner recognizes the contour data of the environment by means of a SLAM process. The position is recognized by comparison with a map stored in the AGV.

Beacon



UWB- or US-beacons are positioned strategically in the plant. The position of the AGV is determined by triangulation.

GPS – Navigation



This navigation uses GPS signals from satellites in combination with a reference station for highly precise positioning in outdoor areas.

Advantages of an AGV:

- More flexibility
- High precision
- Transportation of heavy loads
- Retrofitting of existing systems
- Quick adaptation in case of layout modifications
- Transportation across several buildings
- Requires only minor modifications to the infrastructure or none at all
- Indoor and outdoor navigation



TÜNKERS
Ingenuity in series.

AUTONOMOUS TRANSPORTING

Product range:

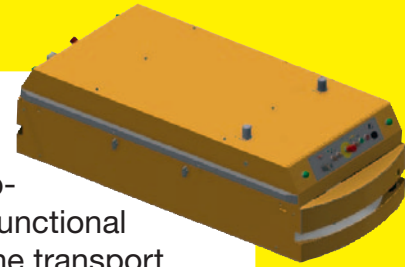
Cart type AGV

Transport of containers with roller bearing wheels and complete tugger trains with docking system. Electrical or pneumatical sub-level docking systems. Advantage: separations in two different functional units. First one is the AGV as a mere drive unit. Second one is the transport container with a standard coupling unit.



Specifications

- Size: 1727/800/481mm
- Speed: 1m/s
- Payload: > 2t
- Traction: > 4t



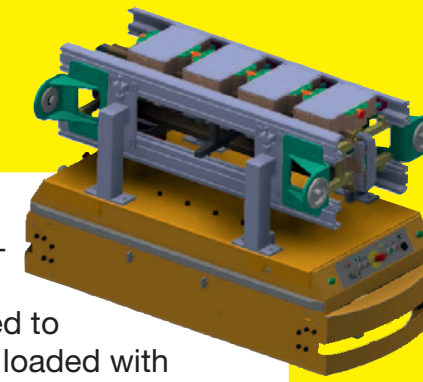
Accumulating conveyor AGV

Combination of an accumulating conveyor and AGV. The standardized accumulating conveyor pallets serve as a link in the logistics chain. With components loaded pallets get transferred to stationary point after docking and at the same time AGV gets loaded with empty pallets.



Specifications

- Speed: 1m/s
- Conveying speed: 0.2m/s
- Payload: 100kg/pallet
- Traction: > 4t



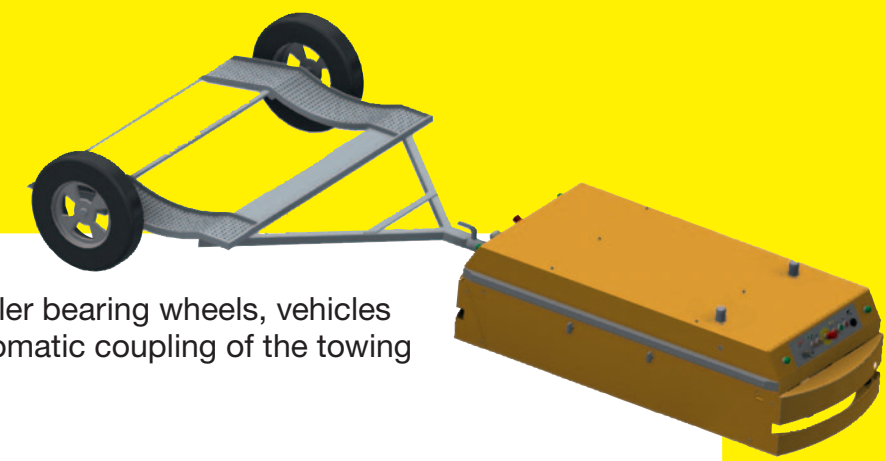
Towing AGV

Transport of containers with roller bearing wheels, vehicles or tugger trains. Manual or automatic coupling of the towing AGV.



Specifications

- Speed: 1m/s
- Payload: > 2t
- Traction: > 4t



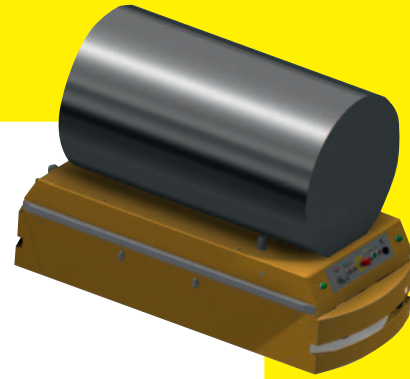
Coil-AGV

High capacity and function-specific designed AGV for transportation of coils with various diameters.



Specifications

- Speed: 1m/s
- Lifting height: 400mm
- Payload: < 6t



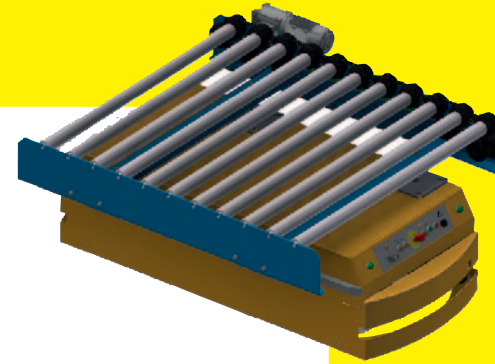
Roller conveyor AGV

AGV equipped with electrically operated roller conveyor to transfer standard containers between docking station and AGV. For passive stations we can equip the AGV with a telescopic gripping system.



Specifications

- Speed: 2m/s
- Conveying speed: 0,2m/s
- Payload: > 1t



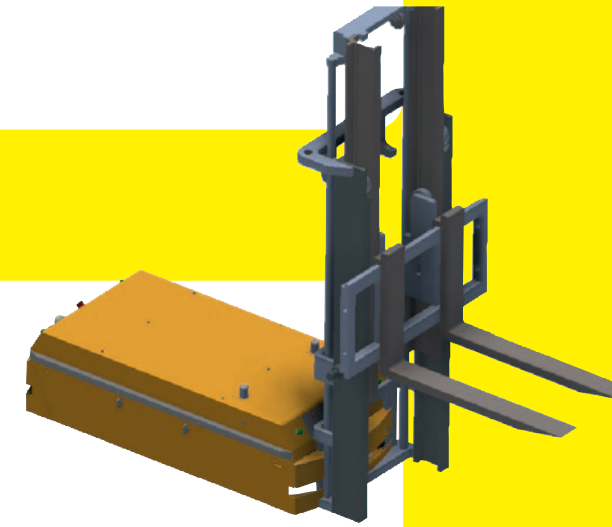
Forklift AGV

Automated forklift replacing conventional forklift driven by workers. Flexible loading of pallets, components or GLTs (large load carriers) that are positioned on the floor or in a shelf system.



Specifications

- Speed: 1m/s
- Lifting height: > 3m
- Lifting: > 4t



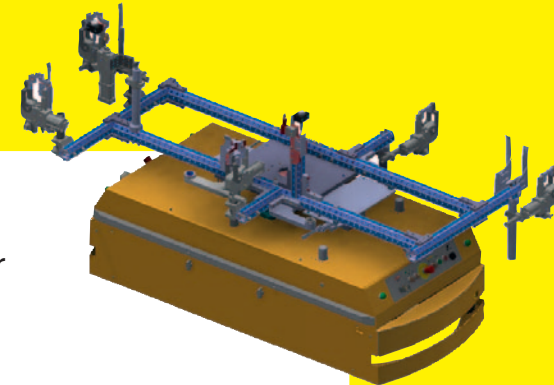
Platform AGV

Loading of modular carriers special designed for safety carrying of components with complicated geometry similar to robotic gripping systems.



Specifications

- Speed: 1m/s
- Payload: > 2t
- Traction: > 4t



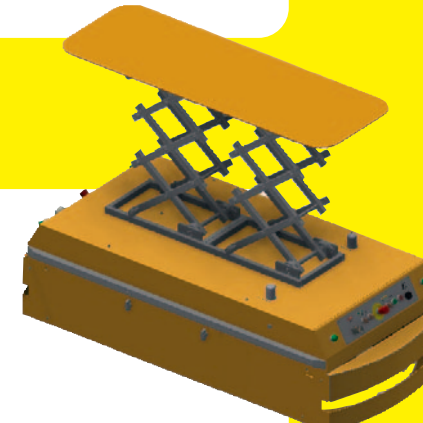
Lift AGV

AGV equipped with an additional lift unit to level various heights in the loading and unloading station. Additional unit like carrier, accumulating conveyor or roller conveyor are integrable.



Specifications

- Speed: 1m/s
- Lifting height: > 500mm
- Lifting: > 1t
- Traction: > 4t



Skid AGV

Transporting of car bodies or underbody assemblies on skids. Electrically operated roller conveyor for transferring of carrying units to stationary points.



Specifications

- Speed: 1m/s
- Conveying speed: 0.2m/s
- Payload: > 2t
- Traction: > 4t

