

# Automated Guided Vehicles System application



## PHOENIX K-1,4 Mr

In the picking warehouse of an animal feed producer in Baden-Württemberg, Germany, two automated guided vehicles (AGVs) from MLR's PHOENIX range operate along a 380 m route.

The AGVs transport bags of animal feed on europallets. The maximum weight of a pallet is one tonne, and the load can be stacked up to 2,400 mm high.

Loads are picked up from four fixed conveyor systems. At the other end of the route, the pallets are transferred into the 776 warehouse bays via gravity-activated roller conveyors. Pallets are moved at a rate of 40 per hour. The AGVs operate with a magnetic navigation system. Each vehicle is fitted with a chain conveyor (pallets are transferred laterally) mounted on a retractable lift frame with a maximum height of 3,300 mm. To prevent the load tilting during handover, the conveyor is lined up with the gravity roller conveyor by a slant device.

While the load is being picked up, the movement of the chain conveyor is synchronised by an exchange of signals activated by light barriers.

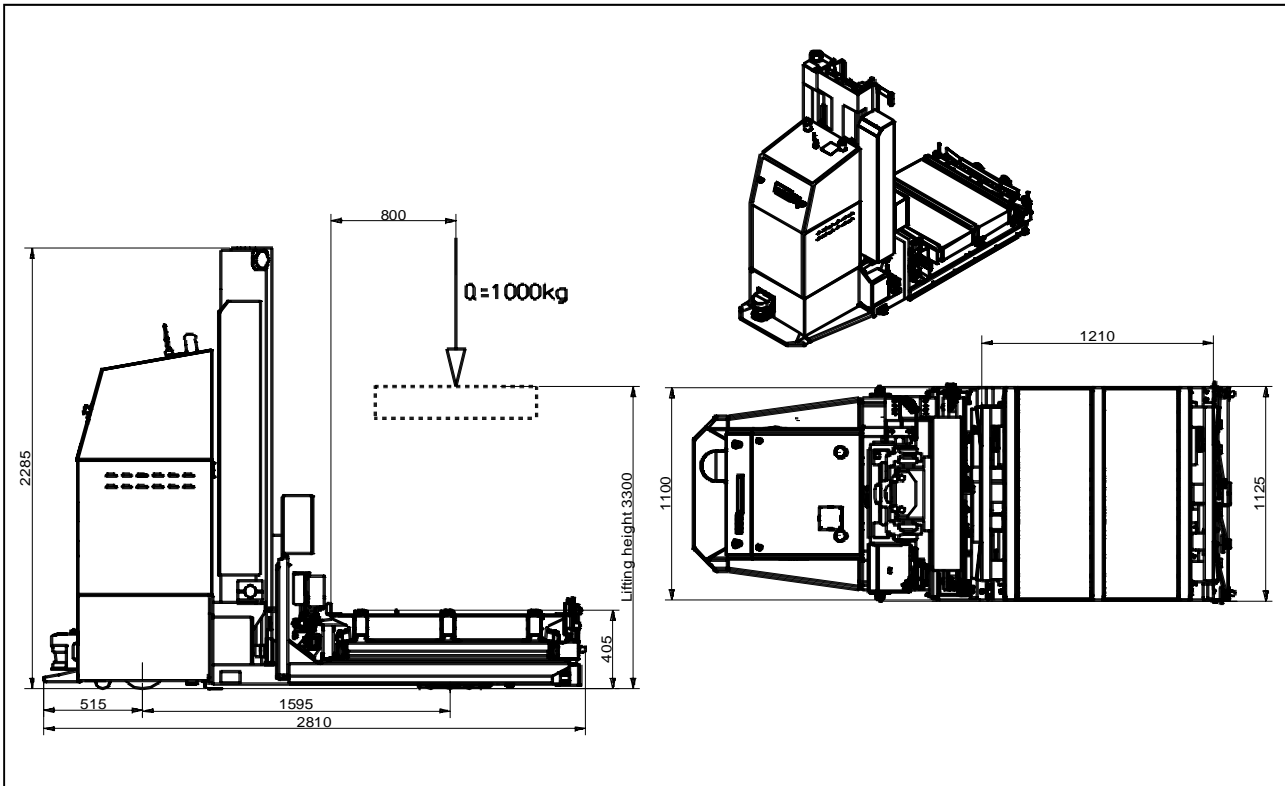
The system operates around the clock, with the NiCd batteries being recharged automatically during the load transfer.

The LogOS control computer controls the two vehicles on the route, resolves traffic issues at intersections, where manually driven forklifts cross the route, and ensures personnel safety. To avoid collisions, risk areas around the bay exits are also marked with flashing lights and the vehicles negotiate these areas at reduced speed.

The AGVs communicate with the control computer via WLAN in the 5 GHz range. All tasking orders are generated by a warehouse management computer and transmitted to the LogOS control system via a data interface.

Other reference installations: Rila-Feinkost, Stenwede

# Technical Data



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|---------------------------|---|------------------------------------|--|
| • <b>Type:</b>            | <b>PHOENIX K-1,4 Mr</b>   | • <b>Load handling attachment:</b> | Retractable chain conveyor with slant device   |
| • <b>Dimensions:</b>      | 2,810 x 1,100 x 2,285 mm<br>(l x w x h)                                   | • <b>Load:</b>                     | Europallets  |
| • <b>Load capacity:</b>   | 1,000 kg  | • <b>Positioning accuracy:</b>     | ± 10 mm lateral and on high  |
| • <b>Lifting height:</b>  | 3,300 mm  | • <b>Energy supply:</b>            | NiCd battery 45.6 V/95 Ah  |
| • <b>Floor clearance:</b> | 25 mm   | • <b>Battery charging:</b>         | Automatic via contact plates   |
| • <b>Power:</b>           | 1.2 kW AC   | • <b>Data transmission:</b>        | WLAN 5 GHz   |
| • <b>Maximum speed:</b>   | 1.5 m/s   | • <b>Navigation:</b>               | Magnetic   |
| • <b>Brake:</b>           | Magnetic brake  | • <b>Safety devices:</b>           | Laser scanners in both directions, bumpers in front, switching edges at the load handling attachment |
| • <b>Undercarriage:</b>   | 3-wheel vehicle<br>spring-mounted drive with<br>2 support wheels in front |                                    |  |