

Automated Guided Vehicles System application



PHOENIX QH-2,0 Lr

A printing plant in North Rhine-Westphalia, Germany, is using an automated guided vehicle (AGV) system from MLR to move paper rolls from the main store to a day store and then to the roll stand on the printing presses.

The four-wheeled PHOENIX vehicle has four independently controlled steering units; two of which are driven. This means the vehicle can travel in any direction, turn 360° and crab diagonally.

The paper rolls being transported can weigh up to 2,000 kg. Their length can vary between 350 mm and 1,400 mm. Roll diameter is between 290 mm and 1,300 mm. Paper rolls less than 450 mm in diameter are transported in an auxiliary attachment known as a cradle.

The rolls are picked up from the roll store via a special conveyor system, stored in the day store, which is a two-level storage rack, and transferred to the printing press roll stand at ground level on demand.

The laser navigating vehicle is fitted with a reach mast and V-shaped prism forks which adjust sideways to support different roll diameters. All movements of the mast and fork – lifting and reach/retraction of the mast, identifying paper roll diameter, extending and retracting the roll – are performed with utmost precision so as not to damage the sensitive paper surface.

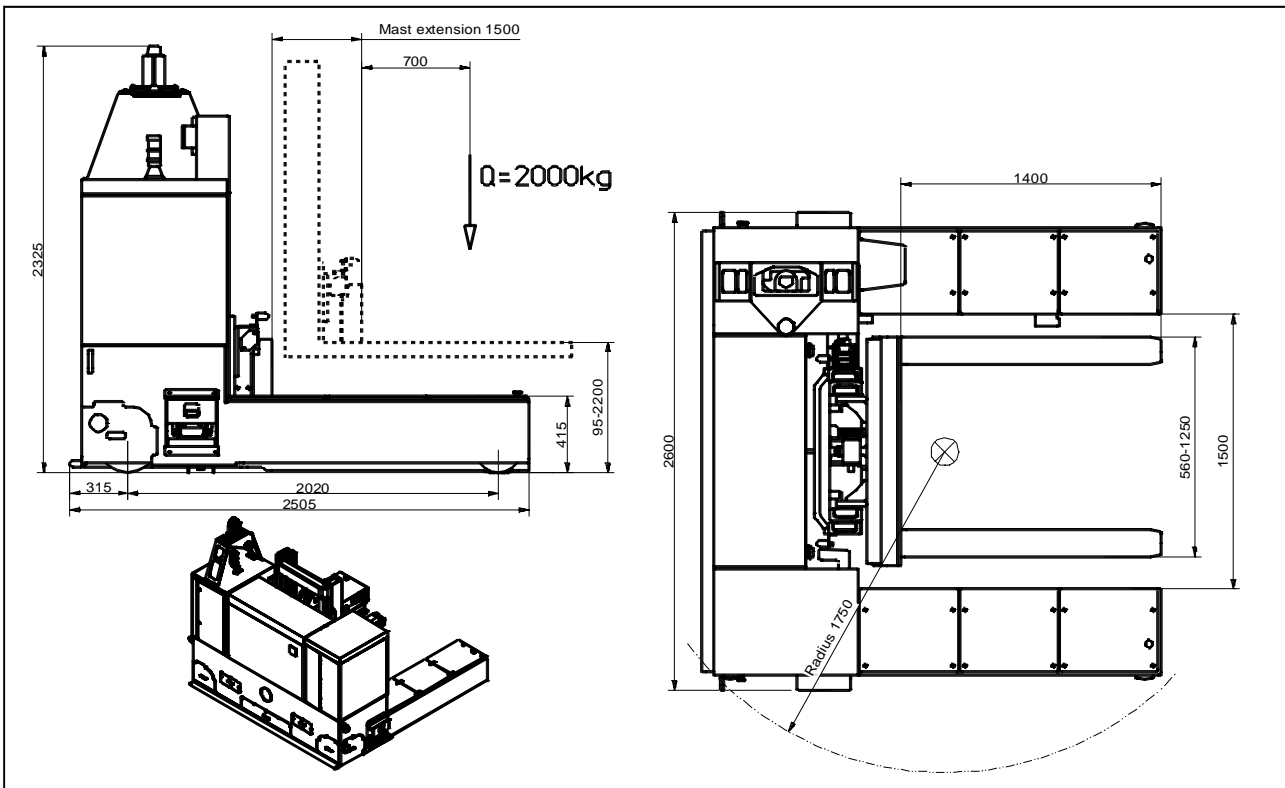
The capacity of the lead battery allows ten hours of continuous operation. The battery is recharged automatically via a floor contact plate.

The vehicle communicates with the LogOS control system via WLAN.

The safety concept for the complex manoeuvres and load manipulations was drawn up in close cooperation with the responsible professional association.

Switching edges and three safety protection scanners ensure that the vehicle can move on all axes without endangering people, monitor underfork safety and detect people who may be in the roll storage rack.

Technical Data



- **Type:** PHOENIX QH-2,0 Lr
- **Dimensions:** 2,505 x 2,600 x 2,325 mm (l x w x h)
- **Load capacity:** 2,000 kg
- **Lifting height:** 2,200 mm
- **Floor clearance:** 30 mm
- **Power:** 2 x 4.0 kW AC
- **Maximum speed:** 0.7 m/s
- **Brake:** Electromagnetic parking brake
- **Undercarriage:** 4-wheel vehicle with four independently controlled steering units
- **Load:** Paper rolls
l max.=1,400 mm, d max.=1,300 mm
- **Load handling attachment:** V-shaped prism forks which adjust sideways
- **Positioning accuracy:** ± 15 mm
- **Energy supply:** Lead battery 48 V/930 Ah
- **Battery charging:** Automatic via floor contact plate
- **Data transmission:** WLAN 5 GHz
- **Navigation:** Laser
- **Safety devices:** Laser scanners, switching edges