

Automated Guided Vehicles Application example



SIEINBOCK

MAYESTO – automated high-bay stacker



High-bay storage facilities are usually serviced either by man-aboard narrow-aisle stackers or with a fixed installation ASRS, automated storage and retrieval equipment. Now there's a strong alternative: the MAYESTO.

MAYESTO is an automated narrow-aisle stacker, usually fitted with a telescopic platform where the telescopic retractable forks can extend to the left or the right - normally found on stacker cranes - to deposit & retrieve pallets. Alternatively the vehicle can be fitted with a standard turret head. The MAYESTO can be used for load transfer heights up to 36 feet and for loads up to 3300 lbs. The new automatic high-bay AGV stacker is based on the high-performance narrow aisle EK 1500 XL turret truck, which has further enhancements for automatic operation.

The fully automated MAYESTO offers some major advantages. These include speed and manoeuvrability. In the aisles, the MAYESTO is rail-guided moving at speeds of up to 531 fpm. Outside the aisles, the vehicle can navigate freely – for example to change aisles – with the proven reliability of the MLR magnetic gyro - navigation system.

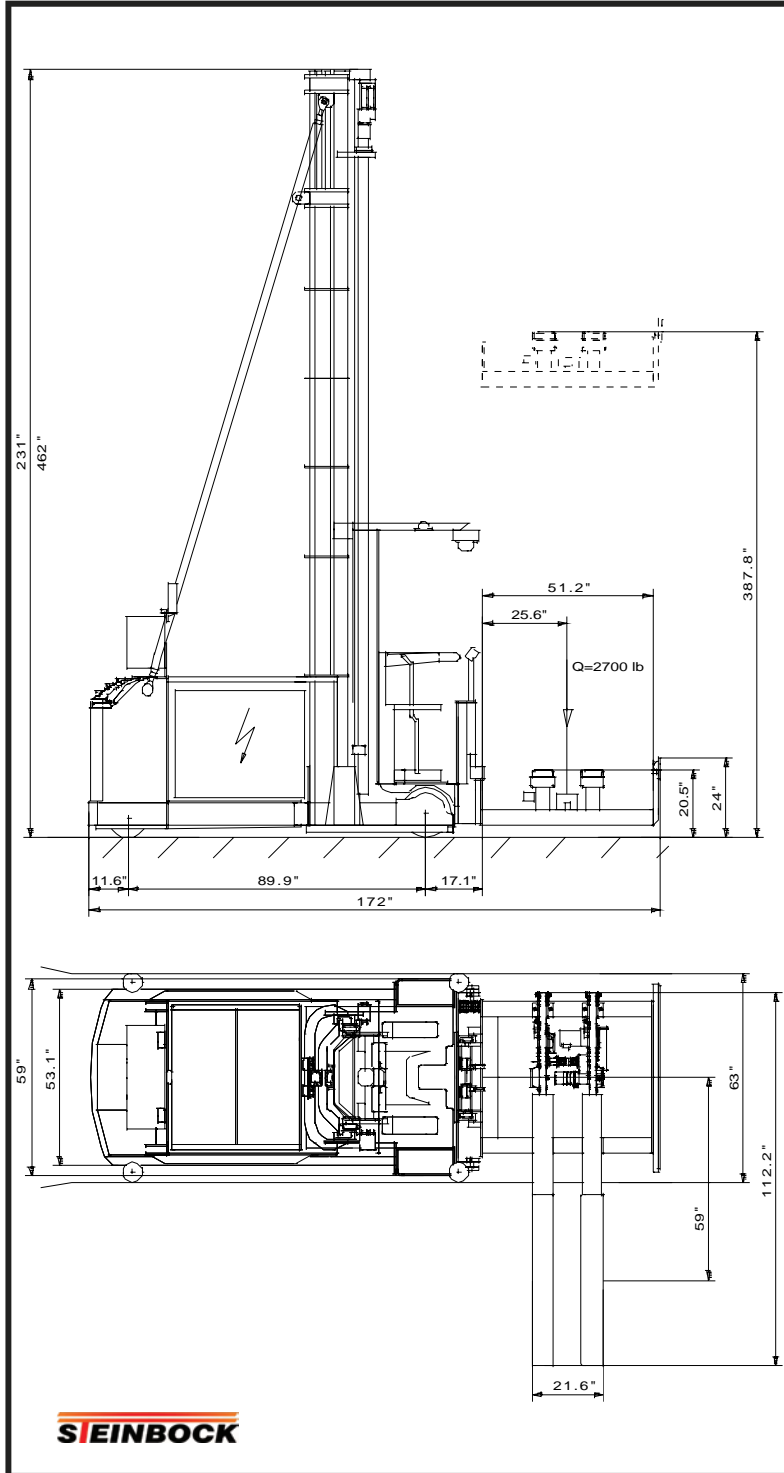
One special feature is the newly developed fine positioning system where re-adjusting laser scanners identify the precise height and size of a storage bay. The laser-based measuring and adjustment is extremely fast.

The MLR LogOS control system manages vehicle routing, task assignment and communications via a radio link to the AGV. Linked to the PC host computer, LogOS will also handle warehouse management and stock control. Existing warehouse management systems (WMS) can be integrated very easily. Peripheral equipment such as fire doors and high-speed doors can also be linked to the LogOS software, as can other conveyor systems supplying or removing goods. The result is a fully automated warehouse operation.

Reference installations: Esso, Hamburg/Germany • DFDS, Copenhagen/Denmark • ZF, Saarbrücken/Germany • Pfizer, Illertissen/Germany • Frans Maas, Bergen op Zoom/Netherlands • DSV, Amsterdam/Netherlands

Technical Data

MAYESTO - narrow-aisle stacker with telescopic platform



Standard vehicle	sample specification
Length x chassis width	172" x 59"
Height with mast retracted	231"
Height with mast extended	462"
Aisle width between guide rails	63"
Payload	2700 lbs
Lift height	388", top edge of fork
Lowest transfer height	17"
Floor clearance	1.2"
Drive	80 V 7 kW AC
Speed	6.2 mph maximum, speed reduction depending on lift height and operation in or outside of aisles
Brakes	Electro-magnetic
Chassis	3-wheeled vehicle
Lift	Hydraulic
Lifting/lowering speed	89 fpm maximum
Load-handling device	Telescopic retractable fork, 2 prongs
Extension/retraction	Electric motor
Max. extension reach	59"
Extension/retraction speed	40 fpm maximum
Automation	
Control	Special control for use in AGV systems Based on PC platform, LINUX operating system
Standard Navigation	Gyro-magnetic navigation, position determination via magnetic sensor bar, piezo gyro and 2 separate load wheel encoder counting sensors provide free ranging capability. In aisles mechanical rail guidance
Positioning	Via navigation, path measurement in the aisles, also measurement of pallet position in the bay by means of laser scanners located on the left and right side of the retractable fork
Positioning accuracy	± 3/8 "
Vertical path measurement	Absolute with wire rope encoder, data transmission via CAN bus
Horizontal path measurement	Absolute with rotary encoders, data transmission via CAN bus
Load monitoring	Light barrier load recognition left und right, Light barrier contour monitoring left und right
Safety	Laser scanners front and rear
Data transmission	Via WLAN to control computer
Other	2 cameras left and right on the cabin roof, operated via WLAN, swivel & tilt action
Energy supply	Pb battery 80V/930 Ah
Battery charging	Manual plug-in for onboard battery charging, or battery change

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