Safety
Thanks to its smart safety management, the P-MATIC anticipates and reacts autonomously to its direct environment. Advanced obstacles’ detection provides real time speed adjustment to enhance the productivity while offering the utmost safety.

Performance
The unique infrastructure-free geoguidance system makes the solution flexible and scalable. Stand alone or within larger fleets of robotic trucks, the P-MATIC can easily interact with the customer’s environment (doors, conveyors…) and even interface with WMS/ERP. The P-MATIC will always deliver the optimal drive speed to achieve the maximum throughput.

Reliability
Fully integrated in the warehouse product range, the P-MATIC benefits from all Linde quality standards, and the robust “DRIVEN BY BALYCO” navigation technology. Always available, the P-MATIC will support your business 24/7 while offering significant costs-savings.

Comfort
The P-MATIC is natively designed to work in a shared environment with people. The user-friendly interface provides all needed controls & information at a glance. Moreover, the dual driving mode makes the P-MATIC intuitive to switch automatic/manual.

Productivity
Efficiency at work, efficiency in servicing. With a computerized & remote diagnostic system, combined with predictive maintenance program, the P-MATIC remains available at any time.

Features

Driving system
→ Standard truck converted into a robotic truck
→ Dual driving mode - automatic/manual
→ Navigation laser, safety front scanner, 3D camera, embedded computer, emergency stop buttons, light and sound warning indicators

Geoguidance navigation
→ Innovative infrastructure-free technology (no reflector)
→ Relies on existing structural features (walls, columns, racks…)
→ Real time mapping and localization
→ Seamless integration in existing layouts, gradual extension or global deployment

Smart safety
→ Real time speed-adaptive detection fields
→ Dynamic cornering detection fields
→ Autonomous decision-making capability with 3D camera
→ Natural cohabitation with operators and other trucks
→ Pallets or obstacles detection thanks to the rear laser scanner

User interface
→ 7” LCD touch screen
→ Robotic truck, battery and system status
→ Real time task management and report
→ Intuitive path localization
→ Service mode with PIN access
→ Log extraction via USB

Operations management
→ Trailers transport management
→ Stand alone or WMS/ERP directed
→ Supervisor software for task and traffic management
→ Various task triggers: call buttons, sensors, PLCs, Supervisor software …

Robotic tow tractor
P-MATIC
Series 1190

Linde Material Handling

Linde Material Handling GmbH, Postfach 10 01 36, 63701 Aschaffenburg, Germany
Phone +49 60 21 99-0, Fax +49 60 21 99-15 70, www.linde-mh.com, info@linde-mh.com
### Technical Data according to VDI 2198

#### Characteristics
- **Manufacturer**: LINDE/BALYO
- **Model designation**: P-MATIC
- **Series**: 1190
- **Power unit**: Battery
- **Operation**: Robotic/manual
- **Load capacity/Load (t)**: 5.0
- **Rated tractive force (F (N))**: 1800
- **Wheelbase (y (mm))**: 1050 ± 5

#### Weights
- **Service weight (kg)**: 1080
- **Axle load without load, front/rear (kg)**: 634 / 446

#### Wheels/Tyres
- **Tyres rubber, SE, pneumatic, polyurethane**: Polyurethane
- **Tyre size, front (Ø x Width)**: 254 x 102
- **Tyre size, rear**: 2 x (Ø x Width) 250 x 80
- **Auxiliary wheels (dimensions)**: 2 x (Ø x Width) 100 x 40
- **Wheels, number front/rear (x = driven)**: 1x + 2 / 2

#### Dimensions
- **Height of seat/stand on platform (mm)**: 710 / 910
- **Height of tiller arm in operating position, min/max (mm)**: 1020 / 1120
- **Towing coupling height (mm)**: 300 / 290 / 345 / 400
- **Track width, front (b10 (mm))**: 544
- **Track width, rear (b11 (mm))**: 675 ± 5

#### Performance
- **Travel speed, with/without load (km/h)**: 8 / 8
- **Maximum tractive force, with/without load (N)**: 4000
- **Maximum climbing ability, with/without load (%):**
  - with load: 3.0 / 14.0
  - without load: 5.0 / 14.0
- **Acceleration time, with/without load (s)**: 6.5 / 4.6

#### Drive
- **Drive motor, 60 minute rating (kW)**: 3

#### Others
- **Type of drive control**: LAC

### Standard Equipment/Optional Equipment

#### Standard Equipment
- Navigation module on a robust frame with lighting signals, control panel, touch screen, communication module, navigation laser, front safety scanner, traction & steering, software management
- Drive wheel and tandem load wheels polyurethane
- Lateral change 4PzS
- Pre-setting for wet battery
- Key switch truck access
- Lighting status column
- 3D camera for volume perception (technical conditions apply)

#### Optional Equipment
- Pre-setting for gel battery
- Fixed battery stand 2 batteries
- Cable/connector Flex
- Cable/connector Perfect
- 3 m cable extension
- 2D curtain laser
- Blue spots single
- Additional louder horn
- Call button (COMBOX)

---

1) ± 5 mm
2) Figures with battery, see line 6.4/6.5.
3) ± 10%
4) +10mm with hook
5) ± 0 mm = 3 PzS lateral. ± 100 mm = 3 PzS vertical and 4PzS lateral. ± 150 mm = 4 PzS vertical ± 225 mm = 4 PzS vertical.