



## Robotic pallet stacker L-MATIC

Series 133

### Safety

Thanks to its smart safety management, the L-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 L-MATIC can easily interact with the customer's environment (doors, conveyors..) and even interface with WMS/ERP. The L-MATIC will always deliver the optimal drive speed to achieve the maximum throughput.

### Comfort

The L-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 L-MATIC intuitive to switch automatic/manual.

### Reliability

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

### Productivity

Efficiency at work, efficiency in servicing.

With a computerized & remote diagnostic system, combined with predictive maintenance program, the L-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 & rear 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

- Stock line management (using front scanner)
- Stand alone or WMS/ERP directed
- Supervisor software for task and smart traffic management
- Various task triggers: call buttons, sensors, PLCs, Supervisor software ...



# Technical Data according to VDI 2198

Characteristics	1.1	Manufacturer		LINDE/BALYO
	1.2	Model designation		<b>L-MATIC</b>
	1.2a	Series		133
	1.3	Power unit		Battery
	1.4	Operation		Robotic/manual
	1.5	Load capacity/Load	Q (t)	1.2 / 2.0 <sup>1)</sup>
	1.6	Load centre	c (mm)	600
	1.8	Axle centre to fork face	x (mm)	948 (833) <sup>2) 3)</sup>
	1.9	Wheelbase	y (mm)	1625 (1510) <sup>2) 4) 3)</sup>
Weights	2.1	Service weight	(kg)	1415 <sup>5) 6)</sup>
	2.2	Axle load with load, front/rear	(kg)	1367/1248 (1419/1996) <sup>5) 2) 6)</sup>
	2.3	Axle load without load, front/rear	(kg)	1110 / 305 <sup>5)</sup>
Wheels/Tyres	3.1	Tyres rubber, SE, pneumatic, polyurethane		Polyurethane
	3.2	Tyre size, front		Ø 254 x 102
	3.3	Tyre size, rear		2x Ø 85 x 85
	3.4	Auxiliary wheels (dimensions)		Ø 125 x 60
	3.5	Wheels, number front/rear (x = driven)		1x + 2 / 2
	3.6	Track width, front	b10 (mm)	544 <sup>3)</sup>
	3.7	Track width, rear	b11 (mm)	380 <sup>3)</sup>
Dimensions	4.2	Height of mast, lowered	h1 (mm)	1490
	4.3	Free lift	h2 (mm)	150
	4.4	Lift	h3 (mm)	1924
	4.5	Height of mast, extended	h4 (mm)	2460
	4.6	Initial lift	h5 (mm)	125
	4.9	Height of tiller arm in operating position, min/max	h14 (mm)	1140 / 1350
	4.15	Height, lowered	h13 (mm)	86
	4.19	Overall length	l1 (mm)	2285 <sup>4) 3)</sup>
	4.20	Length to fork face	l2 (mm)	1135 <sup>4)</sup>
	4.21	Overall width	b1/b2 (mm)	804 <sup>3)</sup>
	4.22	Fork dimensions	s/e/l (mm)	55 x 180 x 1150 <sup>7)</sup>
	4.24	Width of fork carriage	b3 (mm)	780
	4.32	Ground clearance, centre of wheelbase	m2 (mm)	20
	4.33	Aisle width with pallet 1000 x 1200 across forks	Ast (mm)	2868 (2774) <sup>4) 2) 8)</sup>
	4.34	Aisle width with pallet 800 x 1200 along forks	Ast (mm)	2739 (2694) <sup>4) 2) 8)</sup>
4.35	Turning radius	Wa (mm)	2066 (1951) <sup>4) 2) 9)</sup>	
Performance	5.1	Travel speed, with/without load	(km/h)	6/6 (max. 7.2/2.9) <sup>10)</sup>
	5.2	Lifting speed, with/without load	(m/s)	0.11 / 0.22 (0.06 / 0.06) <sup>2)</sup>
	5.3	Lowering speed, with/without load	(m/s)	0.3 / 0.3 (0.07 / 0.07) <sup>2)</sup>
	5.8	Maximum climbing ability, with/without load	(%)	5.0 / 5.0
	5.10	Service brake		Electro-magnetic
Drive	6.1	Drive motor, 60 minute rating	(kW)	3
	6.2	Lift motor, rating at S3 15%	(kW)	1.7
	6.3	Battery according to DIN 43531/35/36 A,B,C,no		no
	6.4	Battery voltage/rated capacity (5h)	(V/Ah)	24 / 375
	6.5	Battery weight (± 5%)	(kg)	295
Others	8.1	Type of drive control		LAC
	8.4	Noise level at operator's ear	(dB(A))	< 70

1) Load distribution e.g. 1000 kg on the forks, 1000 kg on the fork arms. Total load max. 2000 kg.  
 2) Figures in parenthesis with initial lift  
 3) (± 5 mm)  
 4) ± 0 mm = 3 PzS lateral; + 100 mm = 3 PzS vertical and 4PzS lateral;  
 + 150 mm = 4 PzS vertical; + 225 mm = 4 PzS vertical  
 5) Figures with battery, see line 6.4/6.5.

6) (± 10%)  
 7) Load arms 60x125x1119  
 8) Including a 200 mm (min.) operating aisle clearance.  
 9) Includes a 100mm clearance in front of front safety laser  
 10) Figures in parenthesis in automatic operation, forward/backwards

# Standard Equipment/Optional Equipment

## Standard Equipment

Navigation module on a robust frame with lighting signals, control panel, touch screen, communication module, navigation laser, front & rear safety scanner, traction/steering & lifting software management  
 Drive wheel and tandem load wheels polyurethane  
 Lateral change 3PzS  
 Standard mast 1924 mm  
 Fork carriage 560/1150/55 mm built out  
 Pre-setting for wet battery  
 Key switch truck access  
 Polycarbonate mast protection  
 Load detection sensor  
 3D camera for volume perception (technical conditions apply)

## Optional Equipment

Load backrest h=1000mm  
 Tandem load wheels greasable  
 Mesh protection  
 Pre-setting for gel battery  
 Fixed battery stand 2 batteries  
 Mobile battery trolley 1 battery  
 Cable/connector Flex  
 Cable/connector Perfect  
 3 m cable extension  
 2D curtain laser  
 Mobile load perception mounted on carriage (application shelves)  
 Blue spots single  
 Additional louder horn  
 Bar code reader, call button (COMBOX), various sensors...

