Standard and Optional Equipment

L-MATIC 16

Standard Equipment

- → Standard L16 base truck
- → Lateral change 3PzS battery compartment
- → Fork length 1150 mm
- → Fork spread 560mm
- → Standard mast 2844 mm
- → Dual mode operation (manual/automatic)
- → Lead acid battery (3pzs, 270Ah)
- → Manual charging
- → 2 * front SICK safety scanner
- → 1 * rear SICK safety scanner
- → 2 * fork tip sensor
- → Reflector navigation
- → Communication module
- → Visual and acoustic warning indicators
- → P & F ultra high definition navigation scanner
- → BECKHOFF touch screen
- → Key switch

Optional Equipment

- → Multiple standard masts are optional
- → Fork spread 680mm (custom option)
- → Lithium-ion battery
- → Pure lead battery
- → Automated charging
- → Curtain scanner
- → Blue spot
- → I/O panel

T-MATIC 20

Standard Equipment

- → Standard T20 base truck
- → Lateral change 3PzS battery compartment
- → Fork length 1150 mm
- → Fork spread 680mm
- → Dual mode operation (manual/automatic)
- → Lead acid battery (3pzs, 345Ah)
- → Manual charging
- → 1 * front SICK safety scanner
- → 2 * rear SICK safety scanner
- → 2 * fork tip sensor
- → Reflector navigation
- → Communication module
- → Visual and acoustic warning indicators
- → P & F ultra high definition navigation scanner
- → BECKHOFF touch screen
- → Key switch

Optional Equipment

- → Fork spread 560mm (custom option)
- → Lithium-ion battery
- → Pure lead battery
- → Automated charging
- → Curtain scanner
- → Blue spot
- → I/O panel
- → Load capacity 3 tonne (custom option)

Other Options Available on Request

Linde Material Handling

Linde Robotics Pallet Stacker/Truck

L-MATIC 16 - LOAD CAPACITY 1600kg
T-MATIC 20 - LOAD CAPACITY 2000kg

Safety

Adopting SICK safety CPU module and multiple safety scanners, 360° all-round safety protection and 3D obstacle detection can be realised, meeting the requirements of PLd safety level in EN ISO3691-4. Linde Robotics trucks anticipate and react autonomously to their direct environment, to improve efficiency and reduce the need for human intervention.

Performance

The safety design of Linde Robotics trucks can achieve the maximum forward speed of up to 2m/s, backward speed of up to 0.8m/s and turning speed of up to 0.7m/s. The robot path can be dynamically adjusted subject to its application which can assist in the path planning of complex environments and selecting the right driving path to achieve a greater throughput.
* L-MATIC - When placing loads, the driving/ steering/ lifting actions are carried out simultaneously, reducing the waiting time and further improving efficiency.

Flexibility

Linde Robotics trucks are designed to work in a shared environment with humans. The user-friendly interface provides all needed controls and information at a glance. The automatic or manual modes can be switched with the press of one button, the design of which meets the relevant standards.

Reliability

The Linde Robotics trucks bring together popular Linde manual trucks and intelligent navigation technology. The safety system design meets the requirements of European safety standards, to provide 24/7 operation, high accuracy and reliable automatic logistics handling solutions, which inturn optimises your costs of operation.

Service

Electrical design modularisation, efficiency in servicing, localised service support and stockholding of vulnerable parts maximise uptime and cost effectiveness. Network access permitting, an AGV system can even be diagnosed remotely via computer.

Features

Smart safety

- → 360° horizontal safety protection
- → 3D full protection, intelligent area protection
- → Protection area real-time switchover
- → Fork tip obstacles detection
- → Meets EN ISO3691-4 safety requirements

Navigation system

- → Accurate and reliable laser reflector navigation system
- → Ultra high definition navigation scanner

L-MATIC 16

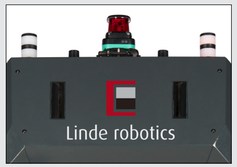
T-MATIC 20

Dual mode operation

- → Safety mode switch button design
- → Linde control tiller
- → One touch operation for automatic or manual mode

User interface

- → 7 inch touch screen
- → Vehicle status / alarm indicator
- → Real-time task management
- → Real-time path display
- → Basic parameter setting
- → Fault diagnosis



Operations management

- → Supports multiple communication protocol interfaces
- → Third-party signal access: safety door / field sensors / photoelectric switch / elevator / mechanical arm, etc.
- → Dynamic path planning to avoid traffic jams caused by hot spots or disabled AGVs

Linde Material Handling Australia
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Linde Material Handling

Technical Data

Characteristics	1.1	Manufacturer		Linde	Linde
	1.2	Model designation		L-MATIC 16	T-MATIC 20
	1.3	Power unit	Battery	Battery	Battery
	1.4	Operation	Automatic	Automatic/Manual	Automatic/Manual
	1.5	Load capacity	Q (kg)	1600 (6)	2000
	1.6	Load centre	C (mm)	600	600
	1.8	Axle centre to fork face, fork raised/lowered	X (mm)	724 (2)	895/962
	1.9	Wheelbase, fork raised/lowered	Y (mm)	1386 (2)	1431/1497
Weights	2.1	Service weight	kg	1350 (3)(10)	917
	2.2	Axle load with load, drive/load side	kg	1125/1825 (3)(10)	1153/1764
	2.3	Axle load without load, drive/load side	kg	985/365 (3)(10)	747/170
Wheels	3.1	Tyres, front (driver) /rear (load): C=cusshion, P=polyurethane	-	P+P/P	P+P/P
	3.2	Tyre size, front(drive) wheel	(mm)	Ø230x90	Ø254X102
	3.3	Tyre size, rare (load) wheel	(mm)	Ø85x65	Ø85X105
	3.4	Tyre size, front (castor) wheel	(mm)	Ø140x50	Ø125X60
	3.5	Wheels, number front (drive)/rear (load) (x=driven)	-	1x+1/4	1X+2/2
	3.6	Track width, front (drive)	b10 (mm)	534 (2)	544
	3.7	Track width, rear (load)	b11 (mm)	380 (2)	355/395/515
Dimensions	4.2	Height of mast, lowerd	h1 (mm)	1915 (2)	-
	4.3	Free lift	h2 (mm)	150 (2)	-
	4.4	Lift height	h3 mm)	2844 (2)	125
	4.5	Height of mast, extended	h4 (mm)	3364 (2)	-
	4.9	Height of tiller arm in operating position, min/max (±20mm)	h14 (mm)	850/1220	1103/1287
	4.15	Fork height, lowerd (±5mm)	h13 (mm)	86 (2)	85
	4.19	Overall length	l1 (mm)	2235 (2)	1976
	4.20	Length to fork face	l2 (mm)	985 (2)	807
	4.21	Overall width	b1 (mm)	980 (2)	809
	4.22	Fork dimensions	s/e/l (mm)	55/194/1150	55/165/1150
	4.24	Width of fork carriage	b3 (mm)	780 (2)	-
	4.25	Fork spread	b5 (mm)	560 (2)	680
	4.32	Ground clearance, centre of wheelbase	m2 (mm)	30 (5)	30/155
	4.33	Aisle width with pallet 1000x1200 across forks	Ast (mm)	2620 (11)/2920 (13)/3155 (14)	2575 (1)/2775 (3)/2975 (4)
	4.34	Aisle width with pallet 800x1200 along forks	Ast (mm)	2582 (11)/2882 (14)/3117 (14)	2469 (1)/2669 (3)/2869 (4)
	4.35	Turning radius	Wa (mm)	1760 11)/2145 12)	1766 (1)/2135 (2)
Performances	5.1	Travel speed, with/without load*	km/h	6.0/6.0 (1)(11) 7.2/7.2 (1)(12)	6.0/6.0 (1) 7.2/7.2 (2)
	5.2	Lift speed, with/without load	m/s	0.15 (3)/0.30 (3)	0.036/0.043
	5.3	Lower speed, with/without load	m/s	0.35/0.4	0.064/0.060
	5.8	Maximum climbing ability with/without load	%	10 (11)/24 (11)	13 (1)/20 (1)
	5.10	Service brake	-	Electro-magnetic	Electro-magnetic
Drive	6.1	Drive motor, 60 minute rating	kw	2.3	1.5
	6.2	Lift motor output (15% rating)	kw	3.2	1.2
	6.3	Battery according to DIN	-	3Pzs 270	3Pzs 345
	6.4	Battery voltage/rated capacity (5h)	V/Ah	24/270	24/345
	6.5	Battery weight (±5%)	kg	252 (1)	297
	6.6	Power consumption according to VDI cycle	kwh/h	1.05	-
Others	8.1	Type of drive control	-	LAC	LAC
	8.4	Noise level	dB (A)	<70	<70

L-MATIC 16

Figures for standard version may vary when optional equipment is fitted.

1) ±5%
2) ±5mm
3) ±10%
4) ±0.07m/s
5) ±2mm
6) Load capacity will decrease when the lift height is increased.
7) For other mast type parameters, please see refer to opposite page.
8) Include free lift height 150mm
9) ● Standard ○ Option □ CO (custom option)
10) Standard configuration with battery weight
11) Manual mode
12) AGV mode. This is a theoretical, calculated, value.
13) AST in AGV mode is a theoretical value calculated at a backward speed lower than 0.3m/s
14) AST in AGV mode is a theoretical value calculated at a backward speed higher than 0.3m/s

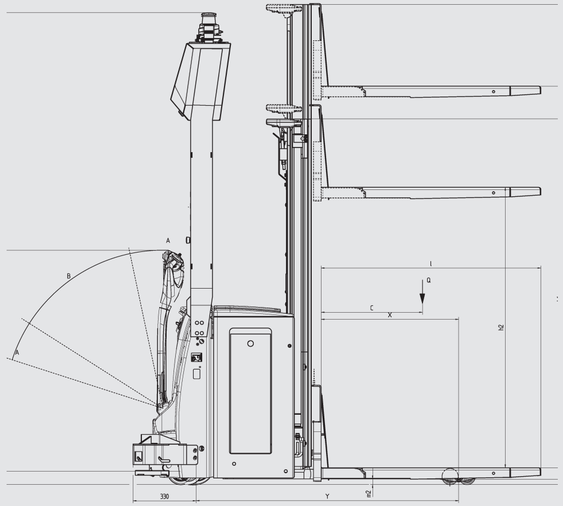
T-MATIC 20

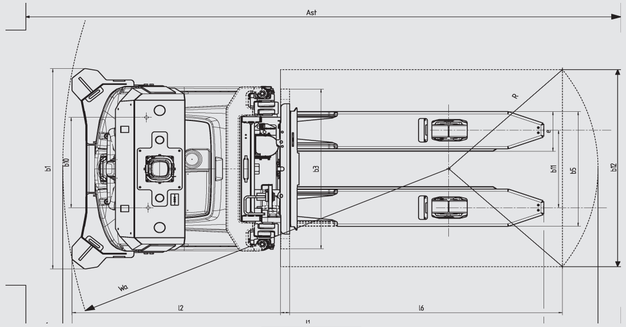
Figures for standard version may vary when options equipment is fitted.

1) Manual mode
2) AGV mode, this is a theoretical, calculated, value
3) AST in AGV mode is a theoretical value calculated at a backward speed lower than 0.3m/s
4) AST in AGV mode is a theoretical value calculated at a backward speed higher than 0.3m/s

* The actual running speed is dependant on the application and environment (applies to both L-Matic and T-Matic models)

L-MATIC 16





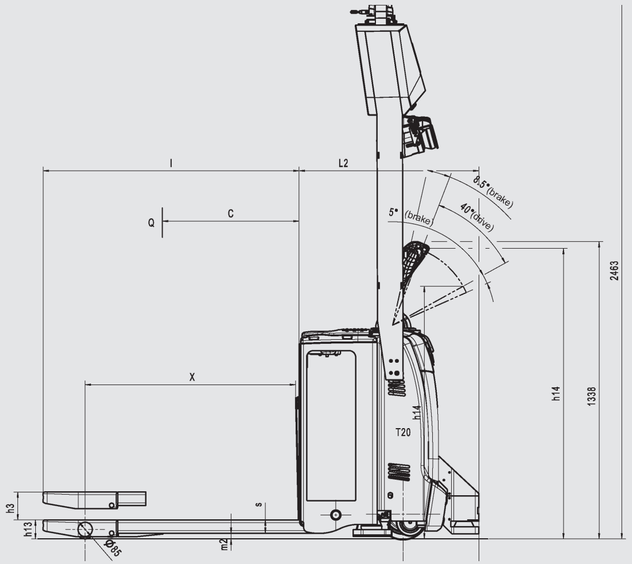
$$Ast = Wa + \sqrt{(l6 - x)^2 + \left(\frac{b12}{2}\right)^2} + a$$

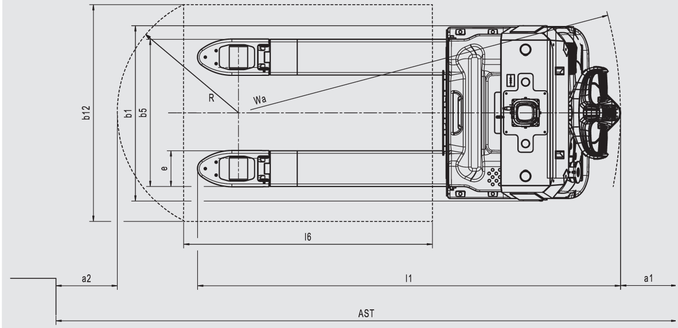
Safety distance a=a1+a2
a1: Front safety distance
a2: Rear safety distance
l6: Pallet length (along fork)
b12:Pallet width (across fork)

Mast Datasheet (in: mm)

Type of Mast			Standard Mast						
Parameter			1844S	2344S	2844S	3244S	3744S	4144S	4644S
L16			○	○	●	○	○	○	○
Lif	h3	mm	1844	2344	2844	3244	3744	4144	4644
Lift+height of fork	h3+h13	mm	1930	2430	2930	3330	3830	4230	4730
Height of mast, lowered	h1	mm	1415	1665	1915	2115	2365	2565	2815
Height of mast after free lift	h1*	mm	1490	1740	1990	2190	2440	2640	2890
Height of mast, extended	h4	mm	2364	2864	3364	3764	4264	4664	5164
Free lift	h2	mm	150	150	150	150	150	150	150

T-MATIC 20





$$Ast = Wa + \sqrt{(l6 - x)^2 + \left(\frac{b12}{2}\right)^2} + a$$

Safety distance a=a1+a2
a1: Front safety distance
a2: Rear safety distance
l6: Pallet length (along fork)
b12: Pallet width (across fork)