Linde Material Handling

Automated Transporting Solutions

C-MATIC

Capacity 1.0 t – 1.5 t | Series 8925/8926

ION

Flat load carrier for short and medium distances

- → Effortless transport on load tables capable of travelling under or between transfer stations
- → Rotating plate to reorientate the load
- → Models with capacities from 1000 to 1500 kg
- → Intelligent software control with efficient orientation via QR codes
- → Safety technology for hazard-free operation in dedicated areas

TECHNICAL DATA (according to VDI 2198)

Characteristics	1.1	Manufacturer (abbreviation)		Linde MH	Linde MH
	1.2	**Manufacturer's type designation**		**C-MATIC 10**	**C-MATIC 15**
	1.2a	Series		8925-02	8926-02
	1.3	Drive		Battery	Battery
	1.4	Operation		Automatic/Manual	Automatic/Manual
	1.5	Rated capacity/rated load	Q (t)	1.0	1.5
Weight	2.1	Service weight	kg	205//235[1)2)]	215//240[1)2)]
Tyres/chassis	3.1	Tyres: solid rubber, superelastic, pneumatic, polyurethane		Polyurethane	Polyurethane
	3.4	Auxiliary wheels (dimensions)		Ø 200 × 40	Ø 200 × 40
	3.5	Wheels, number front/rear (X = driven wheels)		2x + 4	2x + 4
	3.6	Tread, front	b10 (mm)	758	758
Dimensions	4.4	Lift	h3 (mm)	60	60
	4.15	Height, lowered	h13 (mm)	260	260
	4.16	Length of loading surface	l3 (mm)	950[3)]	1000[3)]
	4.18	Width of loading surface	b9 (mm)	750[3)]	780[3)]
	4.19	Overall length	l1 (mm)	1182	1182
	4.21	Overall width	b1/b2 (mm)	832	832
	4.33	Load dimension b12 × l6	b12 x l6 (mm)	1200 × 1200	1200 × 1200
	4.34	Aisle width predetermined load dimensions	Ast (mm)	1897[4)]	1897[4)]
	4.35	Turning radius	Wa (mm)	618.5[5)]	618.5[5)]
Performance	5.1	Travel speed, laden/unladen	km/h	4.3/5.4	4.3/5.4
	5.2	Lifting speed, laden/unladen	m/s	0.29	0.29
	5.3	Lowering speed, laden/unladen	m/s	0.21	0.21
	5.8	Max. gradeability, laden/unladen	%	< 5.0[6)]	< 5.0[6)]
Electric-engine	6.3	Battery according to DIN 43531/35/36 A, B, C, no		Li-ION	Li-ION
	6.4	Battery voltage/nominal capacity K 5	(V)/(Ah) o. kWh	48/38.5	48/38.5
	6.5	Battery weight (±5%)	kg	23	23
	6.6	Power consumption according to VDI cycle	kWh/h	0.3[7)]	0.52[7)]

1) Truck for: transport with adaptor plates//table transport
2) Adaptor plate weight for C-MATIC 10 : (h13=450 mm, +62 kg), (500, +66), (700, +86); C-MATIC 15 : (450, +70), (500, +75) (700, +94)
3) Loading platform rotation diameter : C-MATIC 10 : Ø 1060 mm; C-MATIC 15 : Ø 1114 mm
4) Including a 200 mm (min.) operating aisle clearance. With adaptor plate and load dimensions (l6 × b12) of Euro pallet (800 × 1200) = 1642 mm; UK pallet (1000 × 1200) = 1762 mm: US pallet (1016 × 1219) = 1898 mm
5) Unladen rotation diameter C-MATIC 10/15: Ø 1237 mm with adaptor plate : C-MATIC 10/15 : Ø 1411 mm
6) Suggested max. climbing ability is ≤3%, allowed step height at rated speed ≤5 mm - with reduced speed ≤10 mm, traversable gap at rated speed ≤5 mm – with reduced speed ≤30 mm
7) Battery running time (50% fully loaded) C-MATIC 10/15 : 7,5 h/6,5 h; Battery charging time from SOC 0 ~ 100% : ~1,5 h

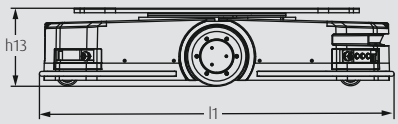
PLATFORM AND ADAPTOR PLATE

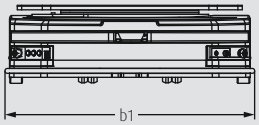
C-MATIC 10	Lift	Height of platform extended max.	Pick up and drop-off height	Max. height of CoG (from floor)	Max. displ. of CoG		Max. capacity	Load carrier type
h13[1)] (mm)	h3 (mm)	h4 (mm)	h13[1)] + h2[2)] (mm)	hc1 (mm)	c1 (mm)	c2 (mm)	Q (kg)	l6 × b12 [× m2] (mm)
260	60	320	290	1130	120	160	1000	Table 1200 × 1200 × 290
290	60	350	320	1000	140	166	1000	Pallets l6 × b12
450	60	510	480	840	127	153	1000	Pallets l6 × b12
500	60	560	530	790	125	151	900	Pallets l6 × b12
700	60	760	730	590	117	143	900	Pallets l6 × b12

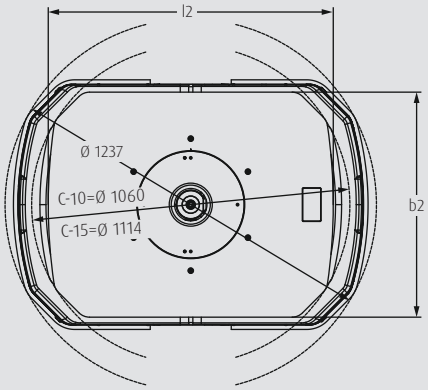
C-MATIC 15	Lift	Height of platform extended max.	Pick up and drop-off height	Max. height of CoG (from floor)	Max. displ. of CoG		Max. capacity	Load carrier type
h13[1)] (mm)	h3 (mm)	h4 (mm)	h13[1)] + h2[2)] (mm)	hc1 (mm)	c1 (mm)	c2 (mm)	Q (kg)	l6 × b12 [× m2] (mm)
260	60	320	290	1130	120	160	1500	Table 1200 × 1200 × 290
290	60	350	320	1000	140	166	1500	Pallets l6 × b12
450	60	510	480	840	127	153	1500	Pallets l6 × b12
500	60	560	530	790	125	151	1300	Pallets l6 × b12
700	60	760	730	590	117	143	1300	Pallets l6 × b12

1) h13 = height from floor to top of vehicle (lift lowered)
2) h2 - free lift: 1/2 full lift to reach pick up and drop-off height

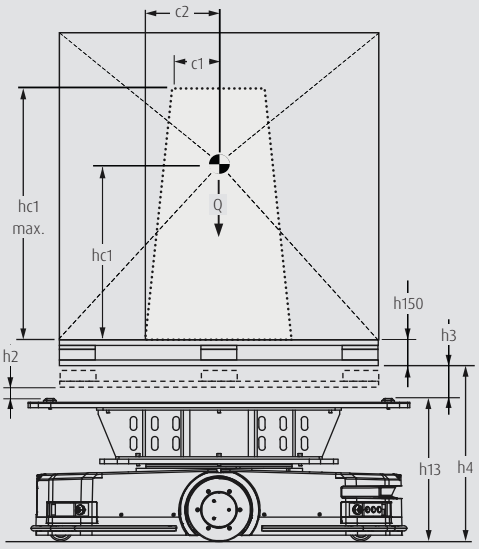
C-MATIC 10, C-MATIC 15

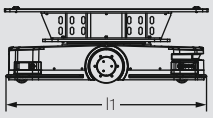


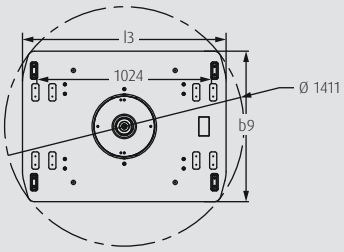




ADAPTOR PLATE: C-MATIC 10, C-MATIC 15

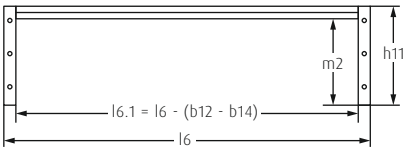


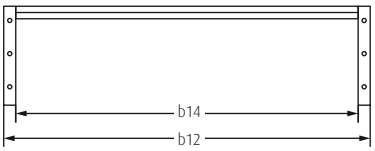


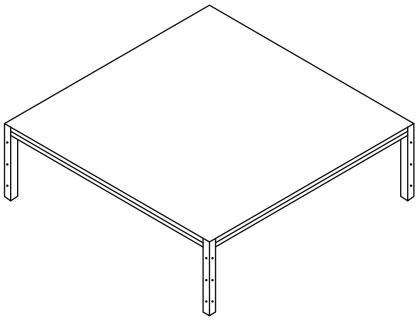


APPLICATION INFORMATION

PLATFORM: TABLE REQUIREMENTS





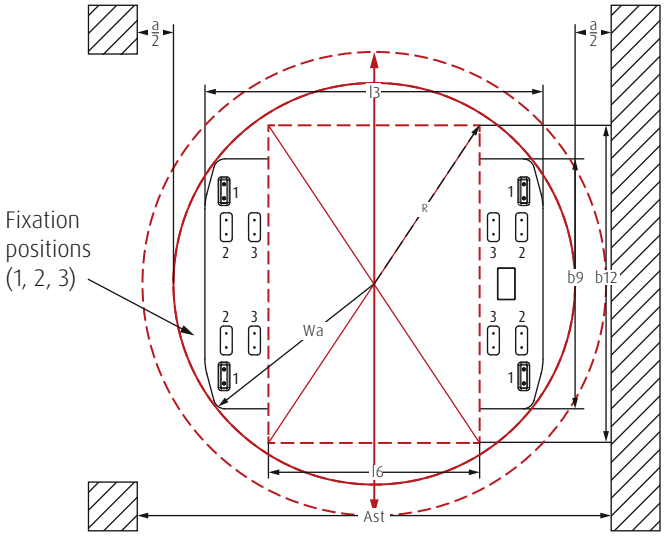


A QR code must be located centrally underneath the table for load identification and orientation.

Manufacturer's type designation	C-MATIC 10	C-MATIC 15
Dimension l6 × b12 × m2 (mm)	1200 × 1200 × 290	1200 × 1200 × 290
Inner Dimensions l6.1 × b14(mm)	1080 × 1080	1080 × 1080
Capacity (kg)	1000	1500
Loading height, unladen h11 (mm)	330	330

ADAPTOR PLATE: PALLET REQUIREMENTS

Safety distance a = 200 mm



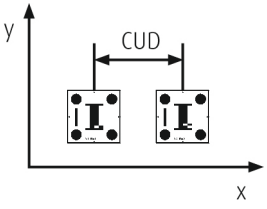
Ast = 2 × max (Wa, R) + a,
with a = 200 mm

$$R = \sqrt{\left(\frac{b12}{2}\right)^2 + \left(\frac{l6}{2}\right)^2}$$

Adaptor plate	C-MATIC 10	C-MATIC 15	Ast (mm)
Adaptor plate dimensions l3 × b9 (mm)	1200 × 887	1200 × 887	1611 mm
Load dimensions (l6 × b12)	Fixation position 1, 2 or 3		
EPAL1, CP2: 800 × 1200 mm	Position 3	Position 3	1642 mm
EPAL3, CP1: 1000 × 1200 mm	Position 2	Position 2	1762 mm
Australia, GMA and North America: 1016 × 1219 mm	Position 1	Position 1	1898 mm

LOCALISATION TECHNOLOGY

The max. QR codes unit distances (CUD) is limited to 1500 mm for vehicle localization.
The different models are optimized for a standard CUD for loads without overhang.



Manufacturer's type designation	Standard CUD (mm × mm)
C-MATIC 10	1350 × 1350
C-MATIC 15	1350 × 1350

STANDARD AND OPTIONAL EQUIPMENT

	Manufacturer's type designation/equipment	C-MATIC 10	C-MATIC 15
Off board software	Smart routing algorithm	○	○
	Smart charging logic	○	○
	Interfaces to existing WMS, ERP, etc	○	○
	Interfaces with infrastructure: doors, conveyors, etc	○	○
	Interfaces with Linde Warehouse Management Systems	○	○
On board software	QR code navigation	●	●
	QR code load identification	●	●
	User-friendly log-on to the vehicle	●	●
Safety	Personal detection safety scanner in main direction of travel	●	●
	Safety field switches between lifted and lowered platform	●	●
	Emergency stop buttons on all sides (left and right corners at both front and rear)	●	●
	Safety bumper around the vehicle (front, side, rear)	●	●
Navigation	Positional accuracy ±10 mm	●	●
	Stop accuracy ±5 mm	●	●
	Angular accuracy ±1°	●	●
	Navigation QR codes with interval 1350 × 1350 mm	○	○
HMI interface	Control buttons	●	●
	LED indicators	●	●
	Depending on situation plays warning sounds and/or voice package	●	●
Operation/ load handling	QR code load table identification	○	○
	Turn, transport and drop load through 90°, 180° and 270°	●	●
	Load table dimensions 1200 × 1200 mm	○	○
	Adaptor plate for pick and drop station at height = 320 mm	○	○
	Adaptor plate for workstations at height = 480 mm	○	○
	Adaptor plate for conveyor at height = 530 mm	○	○
	Adaptor plate for heights between h13 = 290 mm and 700 mm	■	■
	Differential drive with dual wheels	●	●
	Turn on the spot with and without locked platform	●	●
Environment	Wifi communication	●	●
	Ambient operating temperature +0 – +40°C	●	●
Energy	Li-ION battery	●	●
	Automatic Opportunity Charging Connector	●	●
Service	Switch for automated or maintenance mode	●	●
	Plug for Hand Control Unit	●	●
	Hand Control Unit	○	○
	Ramp to operate C-MATIC from delivery pallet	○	○

● Standard equipment ○ Optional equipment ■ Special Equipment

CHARACTERISTICS

Dynamic safety fields

Safety

→ Laser scanner for reliable detection of vehicle's surroundings
→ Immediate reaction to people, other vehicles or obstacles
→ Ideal combination of maximum productivity and highest possible safety
→ Stable collision protection and emergency stop switch for additional protection

Flexible load handling

Handling

→ Orientation based on QR codes on the floor
→ Calculation of the optimal route for each individual transport job
→ QR codes on optional transport tables for load tracking
→ Direct transport of pallets with adaptor plate for different transfer heights
→ Optional self-charging station for fully automated battery charging

Low-maintenance design

Service

→ Robust technology and long maintenance intervals for maximum availability
→ Easy access to all main components for fast maintenance
→ Rapid fault diagnosis via cable connection

Customer process focus as a standard

Sales and realisation

→ Project-specific concept design including dynamic simulation and proof of concept on site if required
→ Combination of manual handling processes and the degree of automation can be optimised to fit the customer needs
→ One face to the customer for the whole process from first contact to the lifecycle phase
→ Intelligent, scalable software solutions to provide customers with full control of their processes
→ Project management and commissioning according to Linde standards with unified tools and templates over the entire network

Presented by:

Linde Material Handling

Linde Material Handling GmbH
Carl-von-Linde-Platz | 63743 Aschaffenburg | Germany
Phone + 49 6021 99 0 | Fax + 49 6021 99 1570
www.linde-mh.com | info@linde-mh.com

DS_C-MATIC_8925-02_8926-02_en_D_0425