



TRANSPORTING – AUTONOMOUS MOBILE ROBOT

C-MATIC 06 | 10 | 15

Capacity 0.6 – 1.5 t | Series 8924-02, 8925-02, 8926-02

Automated solution for efficient goods transport over short and medium distances with little space requirement

- Effortless transport on tables to drive under or between transfer stations
- Model-dependent payload between 600 and 1500 kilograms
- Intelligent software control with efficient orientation by reading QR codes
- Safety technology for hazard-free cooperation in confined spaces

TECHNICAL DATA (According to VDI 2198)

Characteristics	1.1	Manufacturer		Linde	Linde	Linde
	1.2	Model		C-MATIC 06	C-MATIC 10	C-MATIC 15
	1.2.a	Series		8924-02	8925-02	8926-02
	1.3.	Power Unit		Battery	Battery	Battery
	1.4	Operation		Automated	Automated	Automated
1.5	Load capacity/Load	Q (t)	0.6	1.0	1.5	
Weights	2.1	Service weight	(kg)	145	205 ¹⁾	215 ¹⁾
	Wheels / Tyres	3.1	Tyres rubber, SE, pneumatic, polyurethane		PU	PU
3.4		Auxiliary wheels (dimensions)		200 × 40	200 × 40	200 × 40
3.5		Wheels, number front/rear (x = driven)		2x +2	2x +2	2x +2
3.6		Track width, front	b10 (mm)	668	758	758
Dimensions	4.4	Lift	h3 (mm)	55	60	60
	4.15	Height, lowered	h13 (mm)	240	260	260
	4.16	Loading platform, length	(mm)	Ø 680	950 ²⁾	1000 ²⁾
	4.18	Loading platform, width	(mm)	Ø 680	750 ²⁾	780 ²⁾
	4.19	Overall length	l1 (mm)	956	1182	1182
	4.21	Overall width	lb (mm)	730	832	832
	4.33	Load dimension b12 × l6	b12 × l6 (mm)	900 × 900 ³⁾ (780 × 780) ⁴⁾	1200 × 1200 ³⁾⁵⁾ (1080 × 1080) ⁴⁾	1200 × 1200 ³⁾⁵⁾ (1080 × 1080) ⁴⁾
	4.34	Aisle width with predetermined load dimensions	Ast (mm)	1473 ⁶⁾	1897 ⁶⁾	1897 ⁶⁾
	4.35	Turning radius	Wa (mm)	478	618.5 ⁷⁾	618.5 ⁷⁾
	Performance	5.1	Travel speed, with/without load	(km/h)	5.4 / 7.2	4.3 / 5.4
5.2		Lifting speed, with/without load	(m/s)	0.29	0.29	0.29
5.3		Lowering speed, with/without load	(m/s)	0.21	0.21	0.21
5.8		Maximum climbing ability, with/without load	(%)	<5 % ⁸⁾	<5 % ⁸⁾	<5 % ⁸⁾
Drive	6.4	Battery voltage/rated capacity (5 h)	(V)/(Ah) o. (kWh)	48 / 36 ⁹⁾	48 / 36 ⁹⁾	48 / 36 ⁹⁾
	6.6	Power consumption according to VDI cycle	(kW/h)	0.25 ¹⁰⁾	0.3 ¹⁰⁾	0.52 ¹⁰⁾
Others	10.7	Sound pressure level LpAZ (at the driver's seat)	(dB(A))	<75	<75	<75

- 1) Adaptor plate weight for C-Matic 10: (h13 = 450 mm, +70 kg), (500, +75) (700, +94); C-Matic 15: (450, +62), (500, +66), (700, +86)
- 2) Loading platform rotation diameter: C-Matic 10: Ø 1060 mm; C-Matic 15: Ø 1114 mm
- 3) With loading platform: tables as load carrier are required
- 4) Load Inner Dimensions (l6.1 × b14)
- 5) Pallet handling with adaptor plate (l3 × b9 = 1200 × 887 mm) with 3 fixation positions l6: 1016 mm (Position 1), 1000 mm (Position 2), 800 mm (Position 3) b12: < 1219 mm
- 6) Including a 200 mm (min.) operating aisle clearance. With adaptor plate and load dimensions (b12 × l6) of Euro pallet (1200 × 800) = 1642 mm;

- 7) UK pallet (1200 × 1000) = 1762 mm; US pallet (1219 × 1016) = 1898 mm
Unloaded rotation diameter C-Matic 06/10/15: Ø 956 / 1237 / 1237 mm with adaptor plate: C-Matic 10/15: Ø 1411 mm
- 8) Suggested max. climbing angle is ≤ 3 %, allowed step height ≤ 5 mm, traversable gap ≤ 15 mm
- 9) Lithium-Nickel-Manganese-Cobalt oxide battery
- 10) Battery running time (50 % fully loaded) C-Matic 06/10/15: 9 h / 7.5 h / 6.5 h; Battery charging time from SOC 0 ~ 100 %: ~1.5 h

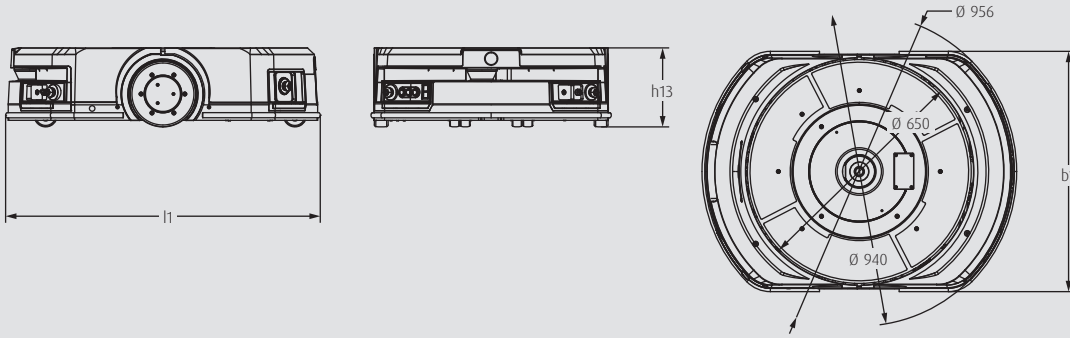
PLATFORM AND ADAPTOR PLATE

1) h13 = height from floor to top of vehicle (lift lowered)

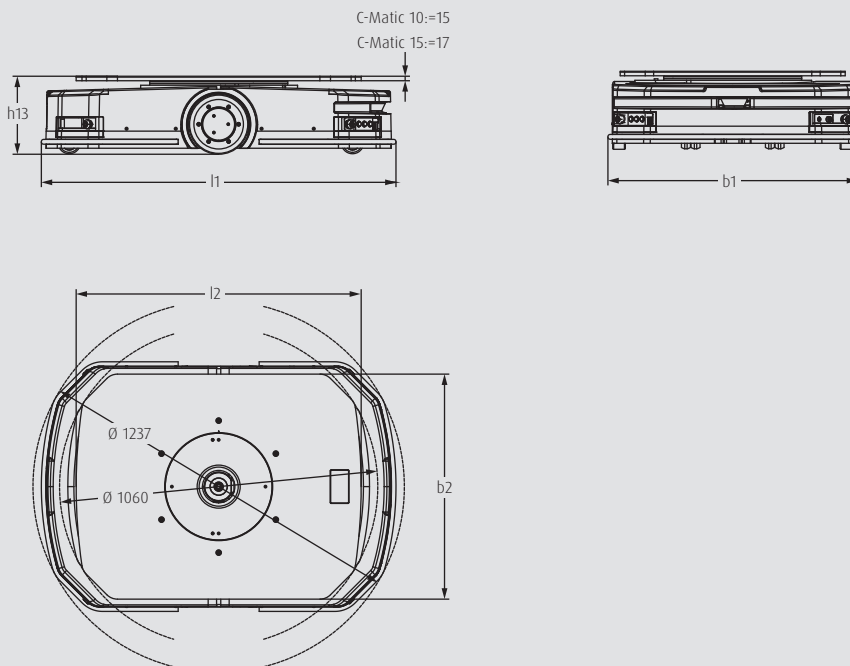
2) h2 = free lift

C-Matic 06	Lift	Height of platform extended max.	Pick up and Drop-off height	Max height of CoG	Max. displ. of CoG		Max. Capacity	Load carrier Type
h13 ¹⁾ (mm)	h3 (mm)	h4 (mm)	h13 + h2 ²⁾ (mm)	hc1 (mm)	c1 (mm)	c2 (mm)	Q (kg)	l6 × b12 [× m2] (mm)
240	55	295	270	740	110	140	600	Table 900 × 900 × 270
C-Matic 10	Lift	Height of platform extended max.	Pick up and Drop-off height	Max height of CoG	Max. displ. of CoG		Max. Capacity	Load carrier Type
h13 ¹⁾ (mm)	h3 (mm)	h4 (mm)	h13 + h2 ²⁾ (mm)	hc1 (mm)	c1 (mm)	c2 (mm)	Q (kg)	l6 × b12 [× m2] (mm)
260	60	320	290	890	120	160	1000	Table 1200 × 1200 × 290
290	60	350	320	650	140	166	1000	Pallets l6 × b12
450	60	510	480	650	127	153	1000	Pallets l6 × b12
500	60	560	530	650	125	151	900	Pallets l6 × b12
700	60	760	730	650	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	Max. displ. of CoG		Max. Capacity	Load carrier Type
h13 ¹⁾ (mm)	h3 (mm)	h4 (mm)	h13 + h2 ²⁾ (mm)	hc1 (mm)	c1 (mm)	c2 (mm)	Q (kg)	l6 × b12 [× m2] (mm)
260	60	320	290	890	120	160	1500	Table 1200 × 1200 × 290
290	60	350	320	650	140	166	1500	Pallets l6 × b12
450	60	510	480	650	127	153	1500	Pallets l6 × b12
500	60	560	530	650	125	151	1300	Pallets l6 × b12
700	60	760	730	650	117	143	1300	Pallets l6 × b12

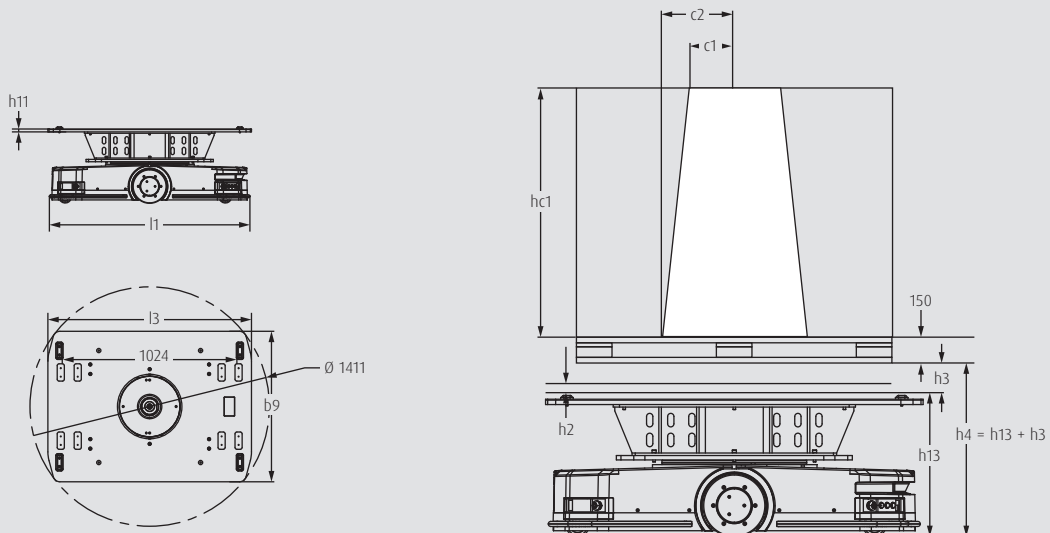
C-MATIC 06



C-MATIC 10, C-MATIC 15



ADAPTOR PLATE



1) h13 = height from floor to top of vehicle (lift lowered)

2) h2 = free lift

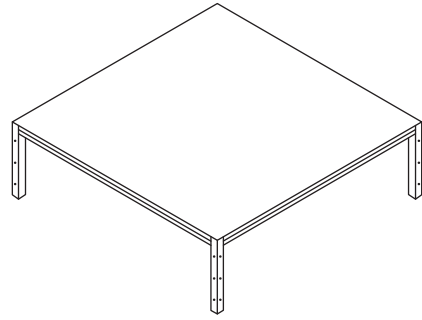
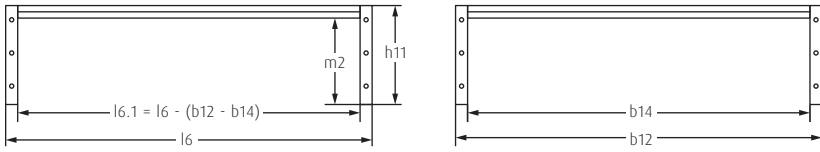
STANDARD AND OPTIONAL EQUIPMENT

Model/Equipment		C-MATIC 06	C-MATIC 10	C-MATIC 15
Off Board Software	Smart routing algorithmen	○	○	○
	Smart charging logic	○	○	○
	Interfaces to existing WMS, ERP, ...	○	○	○
	Interfaces with infrastructure: doors, conveyors, ...	○	○	○
	Interfaces to Linde Warehouse Management Systems	○	○	○
On Board Software	QR Code navigation	●	●	●
	QR Code load identification	●	●	●
	User-friendly log-on the vehicle	●	●	●
Operation / Load Handling	Personal detection safety scanner in main driving direction	●	●	●
	Safety field switch between lifted and lowered platform	●	●	●
	Emergency stops on all sides (front left/right, rear left/right)	●	●	●
	Safety bumper around the vehicles (front, side, rear)	●	●	●
Navigation	Position accuracy ± 10 mm	●	●	●
	Stop accuracy ± 5 mm	●	●	●
	Angular accuracy ± 1°	●	●	●
	Navigation QR Codes with max. intervall 1000 × 1000 mm	○	–	–
	Navigation QR Codes with max. intervall 1350 × 1350 mm	–	○	○
HMI Interface	Control buttons	●	●	●
	LED indicators	●	●	●
	Depending on situation plays sound and/or voice package	●	●	●
Load Handling	QR Code load table identification	○	○	○
	Turn, transport and drop load by 90°, 180° and 270°	●	●	●
	Load table dimensions 900 × 900 mm	○	–	–
	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	–	■	■
Environment	Wifi Communication	●	●	●
	Ambient temperature +0 - +40 °C	●	●	●
Energy	Li-ION battery (Lithium-ion NMC technology)	●	●	●
	Automatic Opportunity Charging Connector	●	●	●
Service	Switch for automated or maintenance mode	●	●	●
	Plug for Hand Control Unit	●	●	●
	Hand Control Unit	○	○	○
	Ramp to drive C-Matic from delivery pallet	○	○	○
Driving	Differential drive with dual wheels	●	●	●
	Turn on the spot with and without locked platform	●	●	●

● Standard equipment ○ Optional equipment – Not available ■ Special Equipment

APPLICATION INFORMATION

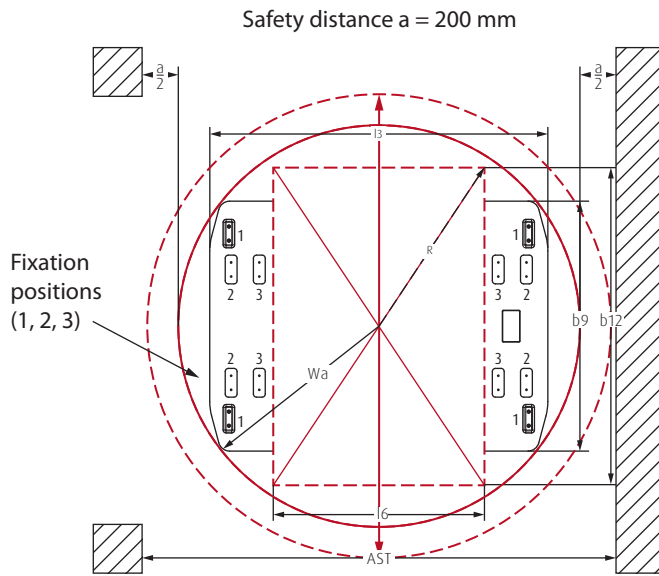
PLATFORM: TABLE REQUIREMENTS



Centered underneath of the table a QR Code is required for load identification and orientation.

Model	C-MATIC 06	C-MATIC 10	C-MATIC 15
Dimension \$l_6 \times b_{12} \times m_2\$ (mm)	900 × 900 × 270	1200 × 1200 × 290	1200 × 1200 × 290
Inner Dimensions \$l_{6.1} \times b_{14}\$	780 × 780	1080 × 1080	1080 × 1080
Capacity (kg)	600	1000	1500

ADAPTOR PLATE: PALLET REQUIREMENTS



$$Ast = 2 \times \max(Wa, R) + a, \text{ with } a = 200\text{mm}$$

$$R = \sqrt{\left(\frac{b_{12}}{2}\right)^2 + \left(\frac{l_6}{2}\right)^2}$$

Adaptor plate	C-MATIC 10	C-MATIC 15	AST (mm)
Adaptor plate dimensions \$l_3 \times b_9\$ (mm)	1200 × 887	1200 × 887	1611 mm
Load dimensions (\$l_6 \times b_{12}\$)	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

Different Models has different maximum limitations of QR codes unit distances (CUD) for vehicle localization.

Model	Max. CUD (mm × mm)
C-MATIC 06	1000 × 1000
C-MATIC 10	1350 × 1350
C-MATIC 15	1350 × 1350



Customer process focus as a standard

Sales and Realization

- Project specific concept design of the automated solution including dynamic simulation and proof of concept on site if necessary
- Combination of manual handling processes and degree of automation can be optimized 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 best control on their processes
- Project Management and Commissioning according to Linde standards with unified tools and templates in the entire network
- Realization expertise for project steering since 2015 with more than 700 installed AGV's

CHARACTERISTICS



Dynamic safety fields

Safety

- Laser scanner for reliable detection of the vehicle's surroundings
- Immediate reaction to people, 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 the optionally available transport tables for load tracking
- Direct transport of pallets with adapter plate for different transfer heights
- Optional self-charging station for fully automated battery charging



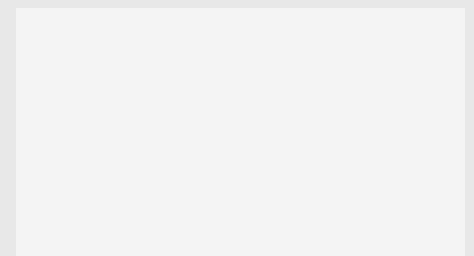
Low maintenance design

Service

- Robust technology and long maintenance intervals for maximum availability
- Easy access to all main components for quick maintenance
- Fault diagnosis via cable connection

Subject to modification in the interest of progress. Illustrations and technical details could include options and not binding for actual constructions. All dimensions subject to usual tolerances.

Presented by:



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