

Electric Forklift Trucks 1200, 1500 and 1600 kg

E 12
E 15
E 16



324-02

Introduction

High-economy counterbalanced forklift trucks in the small capacity class distinguished by several advanced features:

- Energy-economizing Linde Digital Controller (LDC) for smooth, accurate acceleration and deceleration
- Flexibility of application due to compact design and convenient working measurements
- High stability in all load handling and driving conditions due to long wheel-base, low center of gravity and large tread
- Economy enhanced by minimized maintenance requirements, e.g. low brake wear
- Ergonomic design of operator compartment

Operator compartment

Easy to access and ergonomically designed. All truck travel controlled by Linde twin driving pedals. Load lifting and lowering and mast tilting controlled by single-grip Linde central hydraulic lever. Adjustable steering column and hydraulic-suspension seat for comfortable working position. Seat adjustable fore and aft and to driver's body weight between 50 and 130 kg. Adjustable backrest.

Chassis

Traction and lift motors housed within enclosed chassis. Improved dirt and splash protection for hydraulic system and drive components. Robust construction ensuring strength and durability. Steer axle mounted on counterweight, isolating chassis from road shocks.

Motors

Front wheels driven by independent Linde-made motors integrated in compact axle. High-performance acceleration, climbing ability and traction. Smooth, exact change of travel direction with Linde twin driving pedals.

Digital control

New Linde Digital Controller (LDC) provides outstanding driving characteristics with utmost positioning accuracy. Perfectly smooth starting and acceleration combined with quick reversing results in high job productivity. Significantly improved cornering by free-wheeling of inner wheel beyond a turn angle of about 45 degrees. Diagnosis module records all operating data for retrieval by service technician, simplifying and speeding truck maintenance.

Transmission

Traction motors coupled to drive wheels through independent reduction gearing, eliminating need for differential. Wear is reduced and efficiency improved.

Steering

Highly responsive anti-kick hydrostatic power steering practically free from backlash. Small steering effort of 20 N permits use of ergonomically designed small-diameter steering wheel. Energy-saving control of steering pump unit. Pivot-type twin-wheel axle enables truck to turn around on the spot.

Mast

Clear-view masts – standard, duplex and triplex available. Nested double T-section construction ensuring high strength and resistance. Lift jacks located in outer recess of mast columns for optimized visibility. Amply sized lift unit provides high-speed lifting. Mast directly flanged to gearbox on drive axle. Separate lift jack for free lift on duplex and triplex masts.

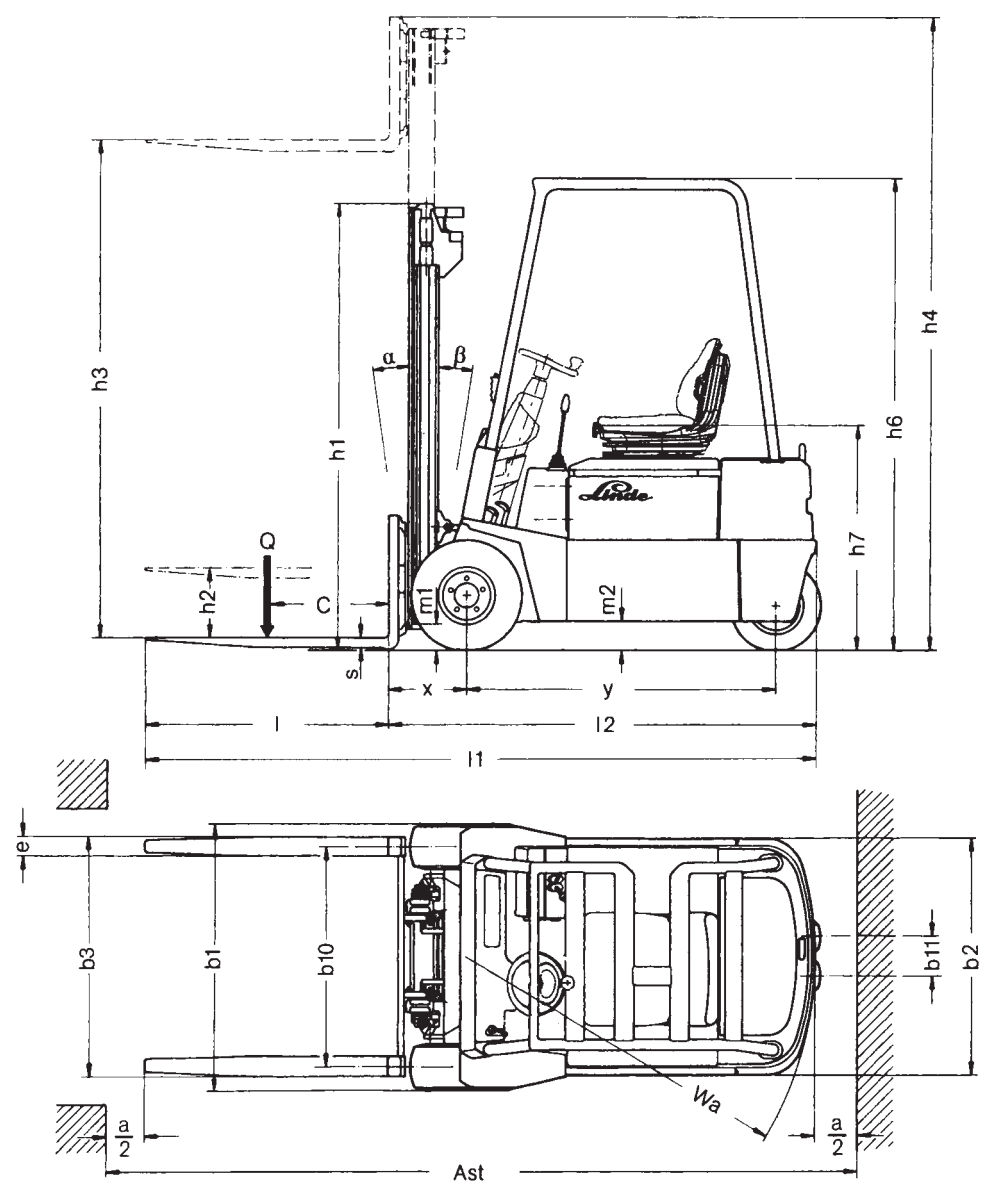
Brakes

Truck is normally braked by depressing the opposite driving pedal, all but eliminating wear. Separate mechanically actuated brakes are provided. Brake linings readily amenable to inspection and replaceable at low cost.

LINDE		Forklift trucks		Data sheet for material handling equipment		EFC	
July 1999		Designation acc. to VDI 2198				Abbreviation acc.	
Characteristics	1.1	Manufacturer		Linde	Linde		
	1.2	Model designation		E 12	E 15		
	1.3	Power unit: battery, diesel, petrol, LP gas, mains power		Battery	Battery		
	1.4	Operation: manual pedestrian, stand-on, seated, order picker		Seated	Seated		
	1.5	Load capacity	Q (kg)	1200	1500		
	1.6	Load centre	c (mm)	500	500		
	1.8	Axle centre to fork face	x (mm)	350 (375) ²⁾	350 (375) ²⁾		
1.9	Wheelbase	y (mm)	1095	1275			
Weight	2.1	Service weight	kg	2646	2860		
	2.2	Axle load with load, front / rear	kg	3405 / 441	3895 / 465		
	2.3	Axle load without load, front / rear	kg	1280 / 1370	1390 / 1470		
Wheel and Tyre	3.1	Tyres, front / rear (SE = CS superelastic, L = pneumatic)		SE (L) / SE (L) ⁵⁾	SE (L) / SE (L) ⁵⁾		
	3.2	Tyre size, front		18 x 7-8 SE ⁵⁾	18 x 7-8 SE ⁵⁾		
	3.3	Tyre size, rear		15 x 4 1/2-8 SE ⁶⁾	15 x 4 1/2-8 SE ⁶⁾		
	3.5	Wheels, rubber front / rear (x = driven)		2x/2	2x/2		
	3.6	Track width, front	b ₁₀ (mm)	910	910		
	3.7	Track width, rear	b ₁₁ (mm)	168	168		
	Dimensions	4.1	Mast / fork carriage tilt, forward / backward	α/β (°)	5/8	5/8	
4.2		Height of mast, lowered	h ₁ (mm)	2137 ³⁾ (2080) ^{1) 8)}	2137 ³⁾ (2080) ^{1) 9)}		
4.3		Free lift	h ₂ (mm)	150	150		
4.4		Lift	h ₃ (mm)	3250 (4675) ^{1) 2)}	3250 (4675) ^{1) 2)}		
4.5		Height of mast, extended	h ₄ (mm)	3813 (5238) ^{1) 2)}	3813 (5238) ^{1) 2)}		
4.7		Height of overhead guard (cabin)	h ₆ (mm)	1953	1953		
4.8		Height of seat / stand-on platform	h ₇ (mm)	923	923		
4.12		Towing coupling height	h ₁₀ (mm)	-	-		
4.19		Overall length	l ₁ (mm)	2515	2695		
4.20		Length to fork face	l ₂ (mm)	1615 (1640) ²⁾	1795 (1820) ²⁾		
4.21		Overall width	b ₁ /b ₂ (mm)	1083 (1000) ⁴⁾	1083 (1000) ⁴⁾		
4.22		Fork dimensions	s/e/l (mm)	40 x 80 x 900	40 x 80 x 900		
4.23		Fork carriage to DIN 15173, class / form A, B		2 A	2 A		
4.24		Width of fork carriage	b ₃ (mm)	1040	1040		
4.31		Ground clearance, mast	m ₁ (mm)	95	95		
4.32		Ground clearance, centre of wheelbase	m ₂ (mm)	110	110		
4.33		Aisle width with pallets 1200 x 1000 across forks	A _{st} (mm)	2942 (2965) ²⁾	3122 (3145) ²⁾		
4.34		Aisle width with pallets 800 x 1200 along forks	A _{st} (mm)	3065 (3090) ²⁾	3245 (3270) ²⁾		
4.35		Turning radius	W _a (mm)	1265	1445		
4.36		Min. turning radius, front axle	b ₁₃ (mm)	-	-		
Performances	5.1	Travel speed, with / without load	km/h	11 / 12.5	10.6 / 12.5		
	5.2	Lifting speed, with / without load	m/s	0.27 / 0.48	0.25 / 0.48		
	5.3	Lowering speed, with / without load	m/s	0.56 / 0.47	0.58 / 0.47		
	5.5	Tractive force with / without load, 60 minute rating	N	2050 / 2226	1860 / 2189		
	5.6	Maximum tractive force, with / without load, 5 minute rating	N	5768 / 5894	5678 / 5857		
	5.7	Climbing ability, with / without load, 30 minute rating	%	7.4 / 11.5	6.3 / 10.5		
	5.8	Maximum climbing ability, with / without load, 30 minute rating	%	15.5 / 23.3	13.4 / 21.4		
	5.9	Acceleration time, with / without load	s	6.2 / 5.4	6.5 / 5.6		
	5.10	Service brake		Mechan./electr.	Mechan./electr.		
	Drive	6.1	Drive motor, 60 minute rating	kW	2 x 3	2 x 3	
6.2		Lift motor, 15 % rating	kW	5	5		
6.3		Battery according to IEC		254-2	254-2		
6.4		Battery voltage / rated capacity (5h)	V/Ah	24 / 550 ⁷⁾	24 / 880 ⁷⁾		
6.5		Battery weight (± 5 %)	kg	445	676		
6.6		Power consumption according to VDI cycle	kWh/h	-	-		
Other	8.1	Type of drive control		Microprocessor	Microprocessor		
	8.2	Working pressure for attachments	bar	170	200		
	8.3	Oil quantity for attachments	l/min	-	-		
	8.4	Mean noise level at driver' ear	dB (A)	-	-		
	8.5	Towing coupling, design / type DIN, no		-	-		
1) See table on page 3 for other mast heights.			7) Other battery capacity to order.				
2) Figures in parentheses for triplex masts.			8) Figures in parentheses for duplex and triplex masts.				
3) With 150 mm free lift.			9) Figures for triplex masts on request.				
4) Figures in parentheses for cushion tyres 18 x 5 x 12 1/8 KS front							
5) Optionally pneumatic tyres 18 x 7 - 8 / 18 PR or cushion tyres 18 x 5 x 12 1/8.							
6) Optionally pneumatic tyres 15 x 4 1/2 - 8 / 12 PR.							

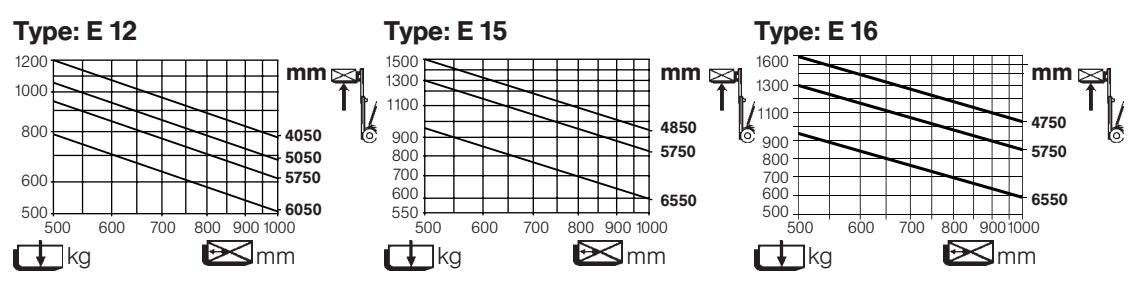
VDI 2198

Linde
E 16
Battery
Seated
1600
500
350 (375) ²⁾
1445
2895
4003 / 492
1465 / 1430
SE (L) / SE (L) ⁵⁾
18 x 7-8 SE ⁵⁾
15 x 4 1/2-8 SE ⁶⁾
2x/2
910
168
5/8
2137 ³⁾ (2080) ^{1) 6)}
150
3250 (4675) ^{1) 2)}
3813 (5238) ^{1) 2)}
1953
923
-
2865
1965 (1990) ²⁾
1083 (1000) ⁴⁾
40 x 80 x 900
2 A
1040
95
110
3292 (3315) ²⁾
3415 (3440) ²⁾
1615
-
13.4 / 15.8
0.41 / 0.62
0.58 / 0.47
1900 / 2147
7383 / 7557
5.7 / 9.7
17 / 27.7
4.9 / 4.3
Mechan./electr.
2x4
9.5
254-2
48 / 660 ⁷⁾
1013
-
Microprocessor
210
-
-
-



Safety distance a = 200 mm

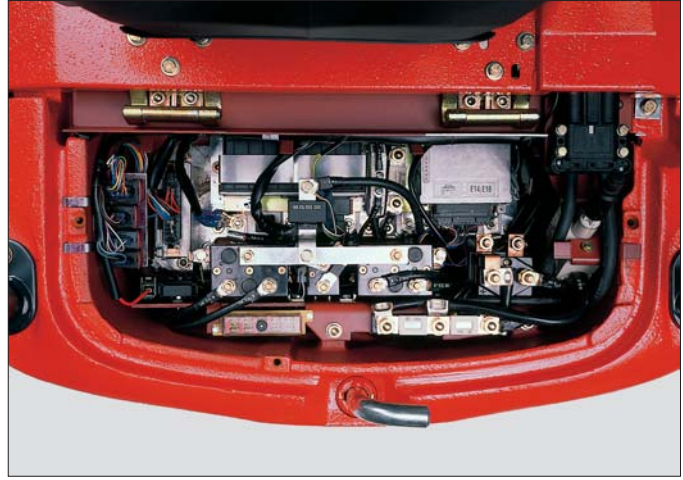
Lifting capacity diagrams for standard and duplex masts:



Figures for triplex masts on request.

Overall height and lift heights (in mm) ⁹⁾						
Lift heights	h3	2950	3250	3950	4250	4950
Overall height, mast retracted (with 150 mm free lift – standard)	h1 #	1987	2137	2487	2637	2987
Overall height, mast retracted (duplex)	h1	1930	2080	2430	2580	
Overall height, mast extended	h4	3513	3813	4513	4813	5513
Special free lift	h2	1367	1517	1867	2017	

Equipment



Safety

The E 12, E 15 and E 16 meet all required safety standards. Highlights are:

- Advanced ergonomic design to prevent work fatigue
- Braking of truck by driving pedals without need to shift feet
- Low noise level
- In-built safety factors:
 - High stability
 - Good visibility
 - Anti-kick hydrostatic power steering
- Emergency circuit cutout
- Electric horn
- Duo-sensitive lap belt to protect driver in head-on collision or overturning on side

Standard equipment

- Front wheel drive by independent electric motors with automatic cornering control
- Microprocessor controller for infinitely variable, energy-economizing control of travel speed and working hydraulics

- Battery discharge indicator with automatic lift motor cutout at low battery level
- Motor brush wear monitoring
- Hydraulic-suspension seat, adjustable fore and aft, adjustable backrest rake, adjustable to driver's body size and weight
- Superelastic tyres
- Standard mast, 3250 mm lift height
- Fork carriage, 1040 mm width
- Forks, 900 mm length

Options

- Standard masts, 2950 to 5750 mm lift height
- Duplex masts (full free lift), 2950 to 4250 mm lift height
- Triplex masts, 4225 to 6725 mm lift height
- Single or double auxiliary hydraulic circuits for all mast types
- Alternative fork carriage widths
- Load backrest

- Alternative fork lengths
- Integrated sideshift
- Truck lighting, work lamps
- Highway specifications
- Pneumatic tyres
 - Front 2 x 18 x 7 – 8 / 16 PR
 - Rear 2 x 15 x 4 1/2 – 8 / 12 PR
- Cushion tyres 18 x 6 x 12 1/8 front (1000 mm width)
- Alternative color finishes
- Warning stripes
- Batteries: 24 V / 550 – 600 Ah for E 12
24 V / 440 – 960 Ah for E 15
48 V / 660 – 720 Ah for E 16
- Battery charger
- Half or full cab with screen wiper

Other options on request.

Subject to modification in the interests of progress. Illustrations and technical details not binding for actual construction. All dimensions subject to usual tolerances.