

Electric Man-down Turret Truck 1500 kg

A15



006

The Linde A15 turret truck has been specifically designed for fast and reliable working in narrow high-rise store aisles. Storage racks, floor, load and truck are coordinated to ensure maximum utilisation of available storage space. Thoroughly experienced specialists are on hand to assist in the planning and optimisation of your warehouse. Different turret heads can be fitted for best possible adaptation of the truck to load and workplace. High stability permits lifting to heights of about 12.8 m.

Features

- High-comfort cushioned suspension seat, adjustable for height and fore-and-aft position. Suspension adjustable to weight of operator
- Large selection of standard and triplex masts for lift heights up to 12855 mm
- Two alternative turret heads are available to suit a wide range of applications:
 - L-head
 - Telescopic fork unit
- Mechanical or inductive guidance available
- Optional pre-selection of lift height
- Exemplary ergonomic design of operator's compartment for working ease and comfort

- Job-optimised central control lever allows operation of all lifting, lowering and turret head functions with the right hand remaining in the same hold.

Operator's compartment

Spacious and designed to human engineering factors with luxury seat and ergonomically optimised positioning of all controls, contributing to non-fatiguing working.

Operator seat affords a very high level of comfort. Self-venting cover, vibration-absorbing mounting, wear-resisting construction, suspension adjustable to operator's weight, fore-and-aft position adjustment.

All load handling functions – lifting and lowering, reach and fork rotation – are controlled by an ergonomically optimised central control lever with no need to change grip. Every motion responds to light movement of the control lever, with the operator's arm supported by a padded rest. Large direction selector, integrated control panel placed for easy view and reach, generous storage space and convenient adjustment of steering wheel height and rake create a workplace ideal for the job.

Drive and Transmission

Traction drive by enclosed series-wound motor rated at 80 V/4.5 kW. High-torque drive provides optimum ratio of smooth running, high load capacity and long life.

Electrical system

Low-loss, infinitely variable control of traction speed from standstill to maximum. Sensitive and precise working at low energy consumption, resulting in high productivity and reduced wear on motor and transmission.

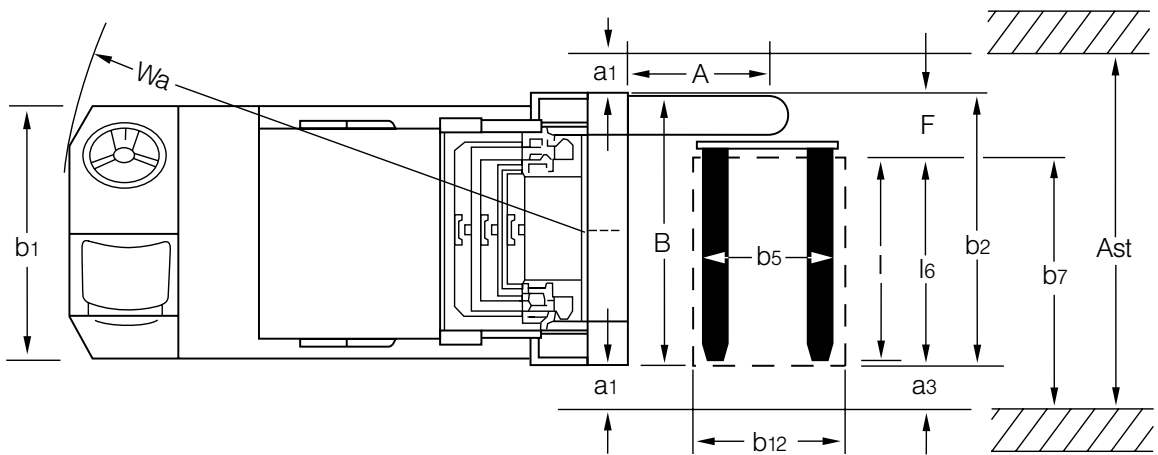
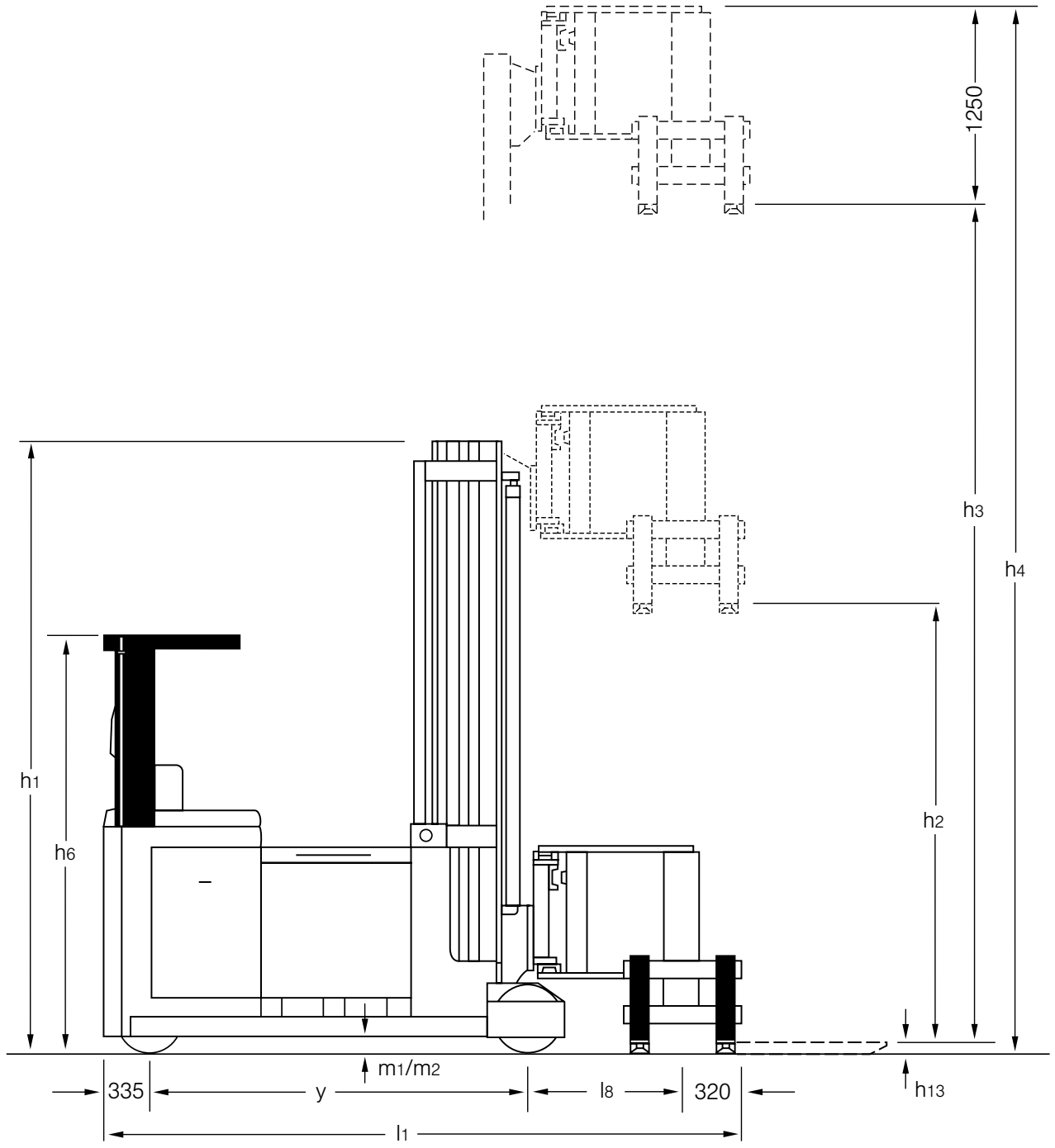
The electrical system incorporates programmable logic control technology (PLC), allowing wide flexibility in integrating the versatile control actions of dedicated materials handling equipment. This results in a more reliable and neater control layout. Status display simplifies truck start up and fault diagnosis.

Steering

Hydraulic power steering standard, servomotor activated by foot switch. Cut-out within truck guidance system to minimise energy consumption. Large spinner-knob steering wheel for easy control of truck movement, individually adjustable to obtain comfortable sitting position.

LINDE		Man-down Turret Truck		Data sheet for materials handling equipment		EFL		VDI 2198			
June 1999		Designation to VDI 3586				Abbreviation to VDI 3586					
Characteristics	1.1	Manufacturer		Linde	Linde						
	1.2	Model designation		A15-01 ⁴⁾	A15-01 ⁵⁾						
	1.3	Power unit: battery, diesel, petrol, LP gas, mains power		Battery	Battery						
	1.4	Operation: manual, pedestrian, stand-on, seated, order picker		Rider seated	Rider seated						
	1.5	Load capacity	Q (kg)	1500	1500						
	1.6	Load centre	c (mm)	600	600						
	1.9	Wheelbase	y (mm)	2265	2265						
Weight	2.1	Service weight		kg	8182	8920					
	2.2	Axle load with load, front / rear		kg	2245/7437	2328/8092					
	2.3	Axle load without load, front / rear		kg	2784/5398	2867/6053					
Chassis	3.1	Tyres: solid rubber, contoured solid, polyurethane			Polyurethane	Polyurethane					
	3.2	Tyre size, front			406 x 127	406 x 127					
	3.3	Tyre size, rear			406 x 152	406 x 152					
	3.5	Wheels, number front / rear (x = driven)			1x/2	1x/2					
	3.6	Track width, front	b ₁₀ (mm)	0	0						
	3.7	Track width, rear	b ₁₁ (mm)	1150 – 1450	1150 – 1450						
	Dimensions	4.2	Height of mast, lowered		h ₁ (mm)	7100 ³⁾	5200 ³⁾				
4.3		Free lift		h ₂ (mm)	–	–					
4.4		Lift		h ₃ (mm)	11880 ³⁾	11880 ³⁾					
4.5		Height of mast, extended		h ₄ (mm)	13135	13135					
4.7		Height of overhead guard (cabin)		h ₆ (mm)	2460	2460					
4.8		Height of seat / stand-on platform		h ₇ (mm)	1240	1240					
4.15		Fork height, lowered		h ₁₃ (mm)	55	55					
4.19		Overall length		l ₁ (mm)	3705 ¹⁾	3705 ¹⁾					
4.20		Head centre		A (mm)	600 ¹⁾	600 ¹⁾					
4.21		Overall width		b ₁ /b ₂ (mm)	1230/1330 – 1630	1230/1330 – 1630					
4.22		Fork dimensions		s/e/l (mm)	50 x 100 x 1200	50 x 100 x 1200					
4.23		Fork carriage to DIN 15173, class/form A, B			2B	2B					
4.24		Width of fork carriage		b ₃ (mm)	640	640					
4.27		Width over side guide rollers		b ₆ (mm)	1590 – 1690	1590 – 1690					
4.29		Lateral reach travel		b ₇ (mm)	1290 – 1390 ¹⁾	1290 – 1390 ¹⁾					
4.31		Ground clearance, mast		m ₁ (mm)	40	40					
4.32		Ground clearance, centre of wheelbase		m ₂ (mm)	85	85					
4.34		Aisle width with pallet 800 x 1200 lengthwise		A _{st} (mm)	1700 – 1850 ¹⁾	1700 – 1850 ¹⁾					
4.35		Turning radius		W _a (mm)	2570	2570					
Performance		5.1	Travel speed, with / without load		km/h	8.6/9.0 ⁶⁾	8.4/9.0 ⁶⁾				
	5.2	Lifting speed, with / without load		m/s	0.31/0.40 ⁶⁾	0.28/0.35 ⁶⁾					
	5.3	Lowering speed, with / without load		m/s	0.35	0.35					
	5.4	Reach speed, with / without load		m/s	0.20	0.20					
	5.7	Climbing ability, with / without load, 30 minute rating		%	0.35/0.775	0.35/0.775					
	5.10	Service brake			Electric / mechanical	Electric / mechanical					
	Drive	6.1	Drive motor, 60 minute rating		kW	4.5	4.5				
		6.2	Lift motor, 15% rating		kW	15.0	15.0				
		6.3	Battery according to IEC			254-2	254-2				
		6.4	Battery voltage / rated capacity (5h)		V/Ah	80/700 L	80/700 L				
6.5		Battery weight (± 5%)		kg	1870	1870					
Div.	8.1	Type of drive control			Electronic	Electronic					
	8.4	Noise level at operator's ear		dB(A)	73	73					
		1) With pallet 800 x 1200 mm along forks.		4) Specification with Standard Lift Mast and L-Head.							
		2) Including 200 mm (min.) operating aisle clearance.		5) Specification with Triplex Lift Mast and L-Head.							
		3) For alternative lift heights, refer to page 4.		6) On minimum closed mast height.							

L-Head



STACKING AISLE VARIATIONS for specification with L-head (in mm).

Only for tucks with mechanical side guidance up to h₃ ca. 7500 mm lift height.

Load type	Load dimensions		Aisle width (between load faces) Ast	Operating clearance		Head centre A	Reach carriage width B	Head width F	Width over forks b ₅	Truck dimensions		End aisle width ** Au
	Length * l ₆	Width b ₁₂		a ₁	a ₃					Overall width b ₂	Overall length l ₁	
Euro pallet	1200	800	1670	90	90	600	1490	290	540	1490	3675	4200
	1200	1000	1670	90	90	600	1490	290	620	1490	3675	4300
	1200	1200	1670	90	90	700	1490	290	620	1490	3775	4500
	800	1200	1520	90	340	700	1340	290	620	1340	3775	4500
Post pallet	1240	835	1720	90	100	600	1540	290	540	1540	3675	4250
	835	1240	1520	90	305	700	1340	290	620	1340	3775	4500

Only for trucks with mechanical side guidance up to h₃ ca. 10500 mm lift height.

Load type	Load dimensions		Aisle width (between load faces) Ast	Operating clearance		Head centre A	Reach carriage width B	Head width F	Width over forks b ₅	Truck dimensions		End aisle width ** Au
	Length * l ₆	Width b ₁₂		a ₁	a ₃					Overall width b ₂	Overall length l ₁	
Euro pallet	1000	1200	1550	105	120	700	1340	325	620	1340	3775	4400
	1200	800	1750	105	120	600	1540	325	540	1540	3675	4200
	1200	1000	1750	105	120	600	1540	325	620	1540	3675	4300
	1200	1200	1750	105	120	700	1540	325	620	1540	3775	4500
	800	1200	1500	105	270	700	1290	325	620	1330	3775	4500
Post pallet	1240	835	1800	105	130	600	1590	325	540	1550	3675	4250
	835	1240	1500	105	235	700	1290	325	620	1330	3775	4500

* Length = parallel to forks.

** Including 200 mm (min.) operating aisle clearance.

Values for wire guided trucks on request.

MAST UNIT VARIATIONS (in mm)

Standard Lift Mast – 'L' Head

Lift	h ₃	4980	5380	5780	6380	7130	7180	7680	7830	8180	8380	8580	8780	8980	9380	10380	11880	12280
Lift height	h ₃ + h ₁₃	5035	5435	5835	6435	7185	7235	7735	7885	8235	8435	8635	8835	9035	9435	10435	11935	12335
Height of mast, lowered	h ₁	3400	3600	3800	4100	4500	4700	4800	4900	5200*	5300*	5400*	5500*	5600*	5800*	6300*	7100*	7300*
Height of mast, raised	h ₄	6235	6635	7035	7635	8385	8435	8935	9085	9435	9635	9835	10035	10235	10635	11635	13135	13535

Triplex Lift Mast – 'L' Head

Lift	h ₃	6720	7820	8120	8820	9120	10020	11880	12080	12280
Lift height	h ₃ + h ₁₃	6775	7875	8175	8875	9175	10075	11935	12135	12335
Height of mast, lowered	h ₁	3200	3600	3700	4100	4200	4500	5200*	5300*	5400*
Height of mast, raised	h ₄	7975	9075	9375	10075	10375	11275	13135	13335	13535

Triplex Lift Mast with free lift

Lift	h ₃	9720	12450	13050
Lift height	h ₃ + h ₁₃	9775	12505	13105
Free lift	h ₂	3170	4270	4470
Height of mast, lowered	h ₁	4400	5500*	5700*
Height of mast, raised	h ₄	10975	13705	14305

* With mast tie-rods as standard.

Mast

Standard and triplex masts, three-point design of pronounced box cross-section ensuring minimum deflection and torsion under high lateral forces resulting from side fork reach.

Mast rollers adjustable to maintain smallest possible clearance between mast columns.



Hydraulic system

All hydraulic motions take place at low noise level, controlled sensitively and continuously through central lever and proportional valves. Ramp-function location of end position on fork rotation and reach. Automatic end-of-lift pump cut-out during lifting. Lowering brake reduces speed over final 50 cm of travel to provide sensitive approach of mast to bottom end position.

Braking

Standard three-wheel brake acting on motor shaft and load wheels. To commence truck travel the negative brake is released electrohydraulically by a deadman's foot switch. Pressing the brake pedal initiates regenerative braking with the traction motor operating as a generator. Depressing the pedal further additionally actuates a hydraulic positive brake.

Turret heads

Different turret heads can be fitted for substantially optimised matching of the truck to load handling operations and load conditions. They ensure economical load handling and best possible utilisation of available storage space.

L-Head ①

Enables loads to be picked up at floor level. Pallets can be picked up and put down to either side or in front of the truck. Load handling motions are initiated and sensitively regulated by control lever. Rugged construction ensures stable load support and with it high productivity. Fork position is adjustable to permit handling loads of varying size.

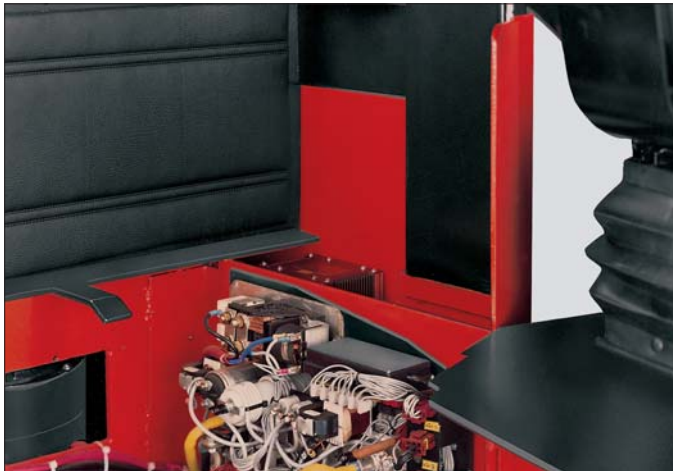
Telescopic fork unit ②

Allows working in minimum width of aisle between racks. Required aisle width is dictated only by the load or truck width and necessary safety clearance. Forks are mounted on a platform and can be extended to either side for picking up and putting down loads. Transfer of loads outside the aisle is made via pallet pick-up and deposit stations, permitting fast turn-around and simple operation. Pallets do not have to be rotated for stacking or restacking and can be picked up or put down directly at any rack position by the forks telescoping to either side.

Rail or wire guidance

Within the working aisle of high-rise stores the truck is usually guided mechanically by side rails. Steering is automatically locked after entering the aisle. As an alternative the trucks can be equipped for inductive wire guidance, which obviates need for side rails. This provides quick and smooth entry to the working aisle without jolting, thus minimising wear. Moreover, cleaning of the store is simplified.

Features



Safety

Linde A 15 turret trucks meet all necessary safety standards. Specific features are:

- Two independent braking systems
- All wheel braking
- Emergency circuit isolator
- Traction current interlock via foot switch
- Traction current interruption by parking brake
- Starting key
- Safety interlock for turret head during stacking and destacking of loads.

Standard equipment

- Traction motor rated at 4.5 kW
- Hydraulic power motor rated at 15.0 kW
- Infinitely variable control of traction and lifting motions
- PLC
- Durable polyurethane tyres on all wheels

- Cushioned seat
- Suspension adjustable to operator's weight
- Adjustment of seat fore-and-aft position, height and backrest rake
- Adjustable steering column
- Operating hours, battery discharge and steering position indicators
- Mechanical aisle guidance (side rail wheels)
- Standard mast
- Rotating L-head
- Compartment for 80 V/700 Ah battery
- Battery monitor with lift cut-out
- LED display.

Batteries and chargers

Various sizes of battery for specific applications.

Optional equipment

- Standard masts up to 11935 mm and triplex masts up to 12855 mm lift height
- Telescopic fork unit
- Side guide rollers for low profile guidance
- Inductive wire guidance
- End-of-aisle and height interlocks
- Working lamp
- Carbon brush wear monitoring for traction and lifting motors
- Battery mounted on rollers in truck
- Flashing warning beacon
- Horizontal aisle positioning
- LHA height indicator
- LPG height pre-selector /coordinate address system
- Automatic fork cycle
- Reach limiter
- Optical pallet bay location monitoring
- Hydraulic fork positioning
- Intermediate lift limit with override
- Computer link via terminal.

Other options available on request.