



Linde Material Handling



VERY NARROW AISLE K

CAPACITY 1500 KG | SERIES 5231

Safety

The K truck has various systems to offer safe operations for the driver as well as for its environment. The personal safety system prevents damage inside the aisle, while the innovative rescue alarm detects unusual operators behavior and attracts attention in emergency cases.

Performance

Strong motors enable high lift- and driving-speeds, while the ergonomic control panel enables quick load handling with minimal hand movement. Assisting systems like LSC or the Aisle Safety Assist support the operator for maximum throughput in safe operation. The innovative Active Stability Control assistance system ensures a smooth and fast travel speed even on floors that do not comply with VDMA guidelines. The electro-mechanical sensors identify and automatically compensate unevenness of the floor to achieve maximum handling performance.

Comfort

With the K trucks superb cabin layout the operator feels immediately at ease and acclimatised. With generous space for freedom of movement, the cab offers a comfortable operational environment for fatigue-free working and promotes optimum efficiency and productivity.

Reliability

These ruggedly constructed, high quality trucks combine with advanced technology and Linde's vast experience in very narrow aisle applications to ensure optimum reliability and durability.

Service

Integrated diagnostic CAN bus technology minimises maintenance intervals. Easy access to all service relevant components enables quick maintenance and low downtimes. The new oil tank is designed for quick access and short maintenance, as well as for optimized foaming behavior.

TECHNICAL DATA

ACCORDING TO VDI 2198

	No.	Description	Manufacturer			
			LINDE	LINDE	LINDE	
Characteristics	1.1	Manufacturer	LINDE	LINDE	LINDE	
	1.2	Model designation	K-Example A	K-Example B	K-Example C	
	1.3	Power unit	Battery	Battery	Battery	
	1.4	Operation	Stand/Sitz	Stand/Sitz	Stand/Sitz	
	1.5	Load capacity	Q (t)	0.7 ¹⁾	0.9 ¹⁾	1.5 ¹⁾
Weight	1.6	Load centre	c (mm)	600	400	600
	1.9	Wheelbase	y (mm)	1614	2046	2212
	2.1	Service weight	(kg)	6488 ²⁾	8555 ²⁾	12776 ²⁾
	2.2	Axle load with load, front/rear	(kg)	1972/5216	2844/6611	4162/10114
	2.3	Axle load without load, front/rear	(kg)	2424/4064	3390/5165	4909/7867
Wheels and types	3.1	Tyres		Polyurethane	Polyurethane	Polyurethane
	3.2	Tyre size, front		360x140	406x170	360x140
	3.3	Tyre size, rear		370x160	370x160	370x160
	3.5	Wheels, number front/rear (x = driven)		1x/2	1x/2	1x/2
	3.6	Track width, front	b ₁₀ [mm]	1245	955	1595
Dimensions	4.2	Height of mast, lowered	h ₁ (mm)	3900	4900	6900
	4.4	Lift	h ₃ (mm)	5600	7200	15650
	4.5	Height of mast, extended	h ₄ (mm)	8155	9800	18850
	4.7	Height of overhead guard (cabin)	h ₅ (mm)	2555	2555	2555
	4.8	Height of seat/stand-on platform	h ₂ (mm)	460	460	460
	4.11	Supplementary lift	h ₉ (mm)	1800	1800	2400
	4.14	Platform height, raised	h ₁₂ (mm)	6060	7660	16110
	4.15	fork height, lowered	h ₁₃ (mm)	60	60	60
	4.19	Overall length	l ₁ (mm)	3244	3871	3842
	4.21	Overall width	b ₁ /b ₂ (mm)	1160/1450 ³⁾	1160/1160 ³⁾	1160/1800 ³⁾
	4.22	Fork dimensions	s/e/l (mm)	50x120x1190	50x120x780	50x120x1185
	4.24	Width of fork carriage	b ₃ (mm)	710	710	710
	4.25	Fork spread, min/max	b ₂ (mm)	470/640	470/640	470/640
	4.27	Width over side guide rollers	b ₆ (mm)	1585	1945	1895
	4.29	Lateral reach travel	b ₇ (mm)	1305	1590	1400
	4.31	Ground clearance, below mast	m ₁ (mm)	40	40	40
	4.32	Ground clearance, centre of wheelbase	m ₂ (mm)	87	87	87
	4.34	Aisle width with pallet 800x1200mm along forks	A ₁₁ (mm)	1645 ⁴⁾	1950 ⁴⁾	1900 ⁴⁾
	4.35	Turning radius	W ₉ (mm)	1870	2302	2468
	4.38	Centre of axle to fork pivot	l ₈ (mm)	1019	1214	1019
4.39	Head centre	A (mm)	480	675	480	
4.40	Width of reach carriage	B (mm)	1465	1750	1560	
4.41	Head width	F (mm)	250	260	330	
4.42	End aisle width, with/without load	A ₉ (mm)	3664	4392	4298	
Performance	5.1	Travel speed, with/without load	(km/h)	9/9	14/14	11.1/11.1
	5.2	Lifting speed, with/without load	(m/s)	0.4/0.4	0.60/0.60	0.39/0.39
	5.3	Lowering speed, with/without load	(m/s)	0.45/0.45	0.45/0.45	0.43/0.43
	5.4	Reach speed, with/without load	(m/s)	0.3/0.4	0.36/0.4	0.30/0.4
	5.9	Acceleration time, with/without load	(s)	6.0/6.0	6.0/6.0	7.0/7.0
	5.10	Service brake		Regenerative	Regenerative	Regenerative
Drive	6.1	Drive motor, 60 minute rating	(kW)	6.5	7	7
	6.2	Lift motor rating at S3 15%	(kW)	13	24	24
	6.3	Battery according to DIN 43531/35/36 A,B,C,no		43 531/B	IEC 254-2 A	IEC 254-2 A
	6.4	Battery voltage/ rated capacity (5h)	(V/Ah)	48/775	80/930	80/930
	6.5	Battery weight (± 5%)	(kg)	1119	2178	2178
Others	8.1	Type of drive control		Microprocessor	Microprocessor	Microprocessor
	8.2	Noise level at operator's ear	(dB(A))	68	68	68

1) Delta Q = 100 kg; from 500 - 1500 kg with L-Head model and from 500 - 1300 kg with telescopic forks
2) Figures with battery, see line 6.4/6.5.
3) Step for b₂; 50 mm from 1160 - 1800 mm
4) Including a 180 mm (min.) operating aisle clearance.

STANDARD EQUIPMENT / OPTIONAL EQUIPMENT

STANDARD EQUIPMENT

Operators cabin "Combi" for easy stacking or order picking

Height and length adjustable and stowable fabric seat

Suspension-mounted cab to absorb shock and vibration

Very soft and comfortable platform surface

Steering knob

Truck access via key

Low step on height for easy on and off

Optic and acoustic user guidance with signalling

Basic functions without changing position of grip

Multipurpose full graphic color display

Sensor area for secured 2 handed driving

Lateral barriers left and right

Throughput:

LSC standard

Synchronized lowering/lifting

Energy recovery when braking or lowering the cabin

Synchronous reach and rotate of forks

Mast/Forks:

L-Head or telescopic forks

Motors:

7kW drive motor

20kW lift motor

OPTIONAL EQUIPMENT

Different types of cabins (combi, comfort, coldstore, wind protection)

Comfortable seats (air suspended, heated, adjustable backrests, armrests, etc.)

Radio preparation integrated in the overhead guard

Rearview (left/right) and panorama mirror

Clipboard DIN A4

Wind protection for lateral doors and loadside (glazed doors and cabin)

Operator fan

Lighting for operators compartment

Working lights into racking

Linde Connect

Individual configurable attachment bars on load or mast side

Throughput:

Active Stability Control (ASC)

Aisle Safety Assist

Warehouse Navigation

LSC Load or LSC Weight

Dynamic Reach Control

Automatic fork cyclus

Overreach of forks

Lift height preselection

Different drive and lift motors available

Mast/Forks:

Standard masts up to 11800 mm lift height

Triplex masts available up to 15650 mm lift height

Telescopic forks

Manual or hydraulical adaptable forks

Gear rack cover of L-Head

Battery:

Different battery (compartment) sizes

Battery roller for lateral change

Battery carrier

Electrical verification for battery lock

Side covering for battery

Li-ION 48V/90V

Environment:

Cold store protection (w/ w.o. 2nd sliding door, Intercom)

Antistatic guide rollers

Safety:

Rescue alarm

Load wheel brake for increased safety at emergency stop

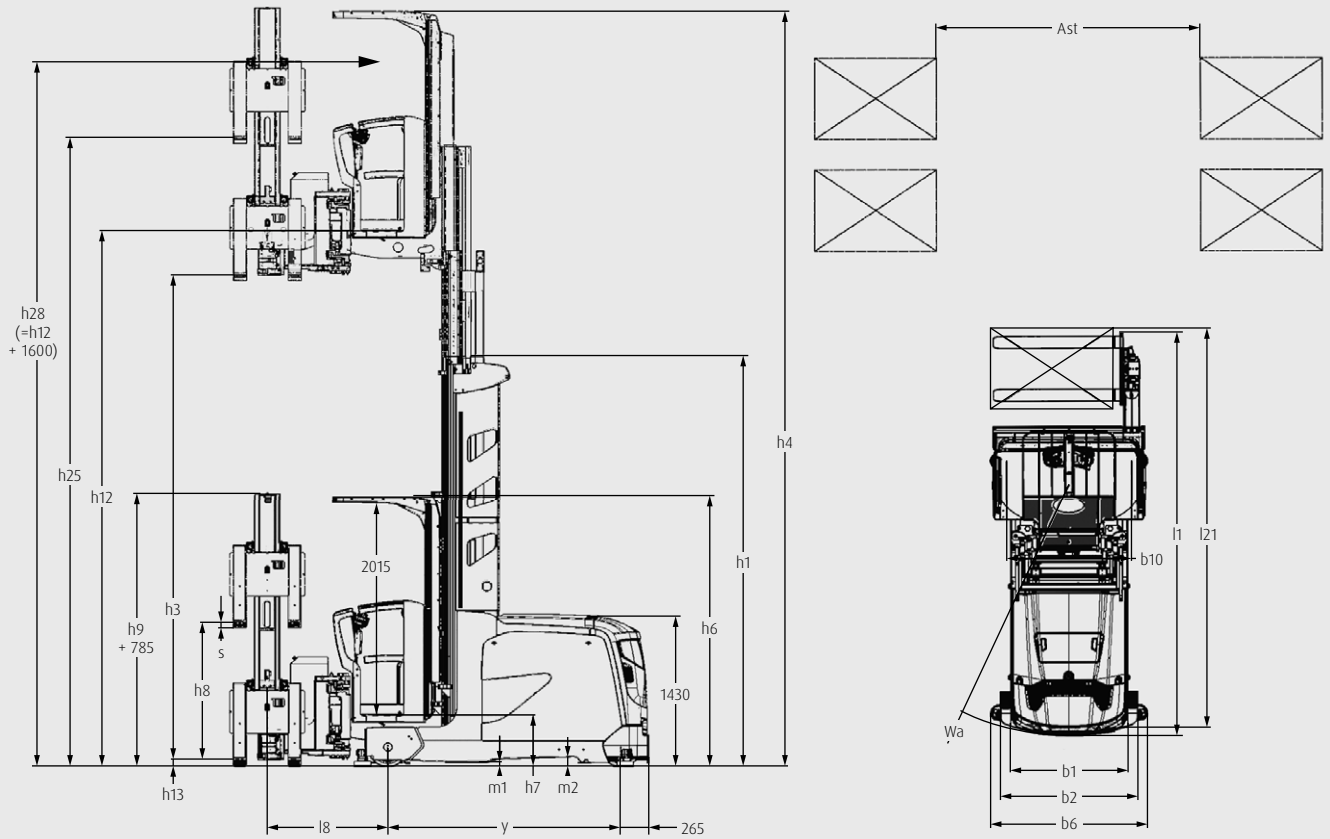
Personal safety equipment (PSE)

Non contact collision avoiding sensor

Motors:

7kW Heavy Drive Motor

24kW Heavy Lift Motor



Standard mast (Basic)	$h_1 = 2400$	$h_1 = 2900$	$h_1 = 3400$	$h_1 = 3900$	$h_1 = 4400$	$h_1 = 4900$
h_3	2600	3600	4600	5600	6200	7200
h_{25}	4460	5460	6460	7460	8060	9060
h_9	1800	1800	1800	1800	1800	1800
h_{28}	4660	5660	6660	7660	8260	9260
h_4	5155	6155	7155	8155	8755	9755

Standard mast (Basic Plus, Medium, Heavy, Heavy Plus)	$h_1 = 2400$ ^{1B}	$h_1 = 2900$ ³	$h_1 = 3400$ ³	$h_1 = 3900$	$h_1 = 4400$	$h_1 = 4900$	$h_1 = 5400$	$h_1 = 5900$	$h_1 = 6400$ ²	$h_1 = 6900$ ²	$h_1 = 7400$ ²
h_3	2200	3200	4200	5200	6200	7200	8200	9000	10000	10800	11800
h_{25}	4060	5060	6060	7060	8060	9060	10060	10860	11860	12660	13660
h_9	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
h_{28}	4260	5260	6260	7260	8260	9260	10260	11060	12060	12860	13860
h_4	4755	5755	6755	7755	8755	9755	10755	11555	12555	13355	14355

¹ only available for Basic Plus standard mast

² not available for Basic Plus standard mast

³ not available for Heavy Plus standard mast

Triplex mast (Medium, Heavy, Heavy Plus)	$h_1 = 2900$ ⁴	$h_1 = 3400$	$h_1 = 3900$	$h_1 = 4400$	$h_1 = 4900$	$h_1 = 5400$	$h_1 = 5900$	$h_1 = 6400$ ⁵	$h_1 = 6900$ ⁵
h_3	5050	6350	7450	8750	10050	11550	12850	14350	15650
h_{25}	6910	8210	9310	10610	11910	13410	14710	16210	17510
h_9	1800	1800	1800	1800	1800	1800	1800	1800	1800
h_{28}	7110	8410	9510	10810	12110	13610	14910	16410	17710
h_4	7605	8905	10005	11305	12605	14105	15405	16905	18205

⁴ not available for Heavy Plus Triplex mast

⁵ only available for Heavy Plus Triplex mast



FEATURES

Cabin

- 3 different cabins available
 - Combi cabin (combined picking / stacking)
 - Comfort cabin with +100 mm more depth
 - Cold store cabin (-30 °C)
- Reduced shock and vibration due to isolation of cabin from chassis
- Easy and low access height
- Various comfortable and adjustable seats



Linde System Control (LSC)

- LSC Standard: Dynamic residual capacity diagram depending on lift height
- LSC Load: Optimisation of shift, swiveling and supplementary lift by load recognition
- LSC Weight: Optimization of all moved axes depending on actual load weight and lift height

Modular concept

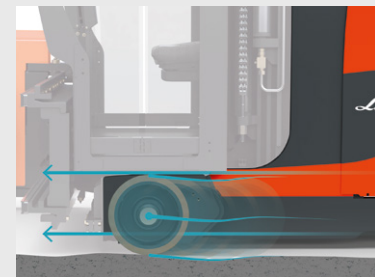
- Unique modular design concept enables perfect individualization
- Combination of different lift and drive motors
- Truck capacities from 0.5t to 1.5 t
- Various cabin widths and executions
- Various chassis widths
- Different battery compartments

Doors

- Side barriers for quick access and easy order picking
- Glass doors to avoid draft and wind
- Tilting barriers for perfect reach to picking position

Dynamic Reach Control

- Effective compensation of lateral mast movements while reaching of forks enables, quicker and more comfortable pallet handling
- Reach adjustment depending on lift height and load weight enables exact and even storage of goods



Mast

- New modular design with exceptionally stable, low deflection characteristics
- Alternative standard and triplex mast to suit all headroom requirements
- More than 60 different masts available
- Automatic soft stop of lift, rotate and traverse movements

Control panel

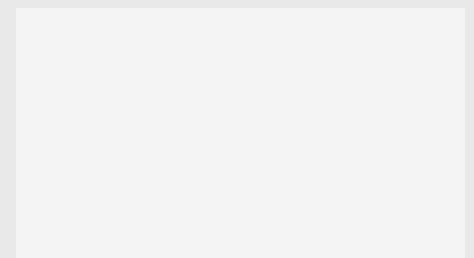
- Control panel options for perfect customisation
- Split control panel for full pallet handling
- Front control panel for order picking or full pallet handling

Active Stability Control

- Maximum handling performance on floors that do not comply with VDMA guidelines
- Electro-mechanical sensors identify and automatically compensate bad surface
- Full speed and maximal performance on bad floors possible. For further information ask your Linde expert

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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