

EK Technical Data.

Order Picker.



Achive more.

Higher performance through motivation.

The driver and his working environment affect order picking performance. STILL helps the operator to achieve 100% performance by providing optimal working conditions in this mobile workplace. Models EK 11 and EK 12 are fitted as standard with the Optispeed futuristic control concept.

Driver's platform / Driver's cab.

Designed in accordance with the latest ergonomic research, to meet the exacting demands of order picking. Shaped to protect and accommodate the body, the driver's cab provides ample space for all order picking tasks to be carried out efficiently. Entry and exit, order picking at floor level, in the racking and onto the pallet – even in the peripheral areas – are perfectly catered for. Padded, smooth surfaces and rounded contours make for a pleasing environment when order picking and also when hoisting, lowering or driving.

Operation and displays.

Clearly and simply structured with special emphasis on the order picking task. The operation of all functions is unmistakable and the design of the multi-function handle allows one handed activation under all operating conditions.

EK 10: The hand grip offers a secure hold when accelerating, braking and negotiating bends. The display panel is passive and shows only those functions and states current to the mode of operation.

EK 11 / 12: The user-friendly handle facilitates operation for left and right handed operators without repositioning the controls and enables the operator to adopt the most suitable posture when operating and driving.

The driver is thus actively supported in a relaxed and efficient working area. The uniform operating philosophy of the STILL order picking trucks allows the greatest flexibility in the deployment of the drivers in the company.

The equipment.

The driver's platform/driver's cab is comprehensively equipped for effective order picking. Integral storage is provided on the EK 10 with an additional storage tray which goes up when hoisting. This provides space for tools, office and packing materials. All needs and requirements in the order picking area are thus fulfilled.

EK 11 / 12: Depending on the cab width there is a choice of accessories which can be specified to improve the order picking operation. The work space can thus be individually designed.

Comfortable workplace.

Not a luxury but an absolute necessity for a healthy working life. The driver's compartment is bright, pleasant, clean, tidy and robust. Thanks to a sprung, shock absorber floor and end of stroke damping, it is also impervious to jolts. This reduces operator stress and provides a high level of protection.

With effective insulation from noise and draughts plus good visibility, the mobile workplace offers an environment which motivates the performance orientated worker even more.



Technology as a service.

The modern, simple, performance-optimised technical design supports the driver and is ideally suited to the requirements of order picking. All movements are provided with adjustable ramp functions for maximum acceleration and deceleration and the highest speeds. The central service and diagnostic interface allows easy adjustment to match the goods being picked and the warehouse environment.

- more power.
- lower maintenance costs.
- improved energy management will increase the efficiency and economy of your company.

The new generation of EK units – Models EK 11 / 12 with OPTISPEED.

Order picking trucks EK.

- for a contented workforce.
- for greater picking performance.
- for higher return on investment.

Service to the customer is the motivation for this truck concept and combines:

- elegance through stylish design.
- ergonomics through shape and equipment.
- effectiveness through simplicity and ruggedness.
- economy in price/performance ratios.



EK 10 Standard equipment.



Driver's platform.

- The driver's cab working area is arranged in line with the latest occupational and medical information. Comfort and ergonomics make for high picking performance.
- Shock damping suspension of the driver's cab and appropriately designed cab floor absorb the shocks and vibrations that can occur when driving, hoisting and lowering.
- Low step into the driver's cab and a 3-piece barrier increase safety for the operator and allow order picking at floor level.
- Operating console with generously sized controls and hand grip for safe support. Due to their unmistakable and obvious layout, all main functions are possible, individually or simultaneously, without changing the position of the hand. Integral key switch.
- Integral display console directly in the driver's field of view indicates only active functions and relevant current states.
- Panelling with integral storage compartments for paper, pens and pencils or tools.
- A plastic screen at the mast end fitted between the channel sections protects from draughts and noise.
- Overhead guard for the high-lift version. Clear view upwards due to open construction. Accessories are easily and simply fitted to maximise use of space.

Steering.

- Electric servo-steering with defined centre position makes for fatigue-free work and energy saving operation. The steering angle is displayed on the control panel. The steering angle control guarantees safe and powerful driving characteristics.

Guidance systems.

- Automatic rail guidance takes over the steering function in the aisle, leaving the driver free to concentrate fully on his work.

Masts.

- Compact mast construction guarantees stability and torsional stiffness so that the operator feels comfortable and safe.
- Excellent visibility through and around the mast makes for the greatest safety when driving. Due to the inclined rear hood, the view onto the travel path is considerably improved even for shorter drivers.
- Integral lower end of stroke damping ensures that any shocks generated are minimised.

Initial lift.

- When order picking the pallet can be moved to the most convenient working height.

- Due to the compact design of the mast and carriage, the lost length is minimised allowing maximum utilisation of the stacking area right up to the edge of the pallet.

Hydraulics.

- Lifting and lowering functions are controlled by a push button operated solenoid combination valve with pressure accumulator.
- A pressure relief valve protects the system from overload.
- A hydraulic lowering damper in the cylinder lets the cab gently down to the bottom, either laden or unladen. This protects the goods and reduces operator strain.

Drive.

- The basis for a powerful and economical drive concept is a low wear, low maintenance drive unit combined with the latest MOSFET technology, featuring off-load switching for sensitive driving independent of load.
- High level of economy as no braking or direction contactors are required.
- Monitoring of the drive status for effective preventative maintenance.
- High degree of driver comfort thanks to jolt-free starting and smooth acceleration up to maximum speed.
- The powerful drive unit in conjunction with a bevel and spur gear transmission provides the ideal combination of quiet running, high load capacity and long life.

Brakes.

Braking is provided by two independent systems and is virtually free of wear; a spring loaded brake acts on the drive unit to hold the truck at a standstill and a generator brake operates through the drive during use.

- Very high life expectancy thanks to the wear-free generator braking.
- High recovery of energy in generator mode.
- The spring loaded brake is only used in low wear applications such as parking and holding.
- Different braking parameters set for deadman or plugging operation give a high level of driving comfort.

Controller.

The control unit, consisting of only a small number of components, is clearly laid out, very reliable and constructed to a high safety standard.

- No relays or contactors in the peripheral equipment thanks to the central processing of the input/output signals.
- Energy recovery for longer periods of use, higher turn round of pallets and lower energy costs.
- Simple adjustments matched to the application give maximum turn-round of goods.
- Simultaneous movements such as driving and hoisting are also provided for operating outside the aisle at maximum permissible speeds.
- Diagnostic and service interfaces make for a simple procedure when configuring and setting parameters using the Service laptop.
- Low spares holding costs due to the reduced number and uniform controller components.

Battery.

- For multi-shift use, battery changes are possible from above using a hoist or to the side using a roller track.
- Battery interlock on the side of the chassis.

Automation components.

Thanks to a variety of components, the high lift order picker can be adapted to special working conditions:

- Integration into the STILL Material flow Management System via radio data transmission allows order picking routes to be logistically optimised and thus increases order picking performance and cost efficiency.

Safety and quality.

- Trucks are built to EC Directive 98 / 37 / EC and carry the CE symbol.
- STILL is certified to ISO 9001.

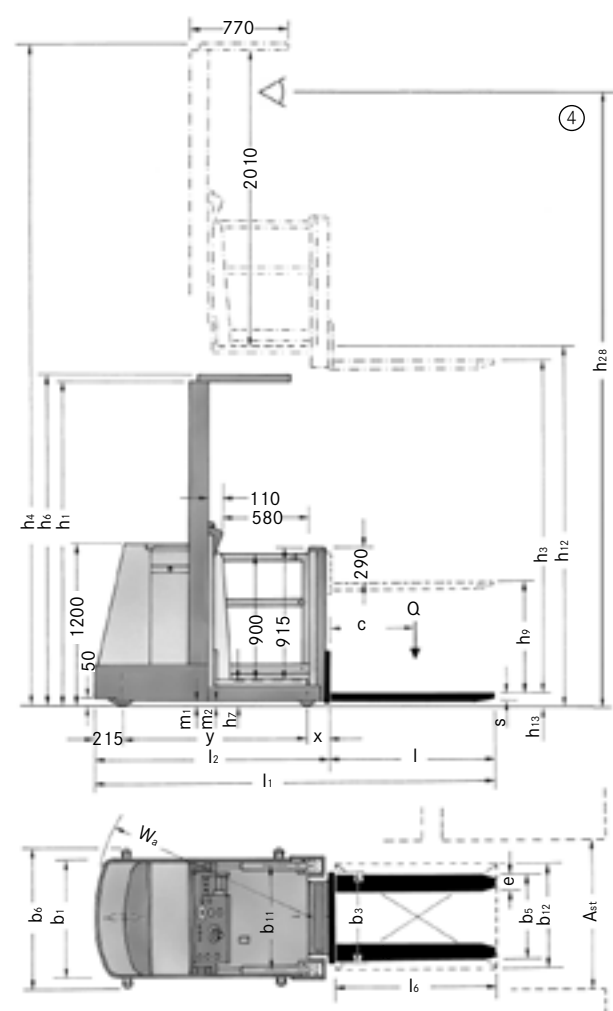
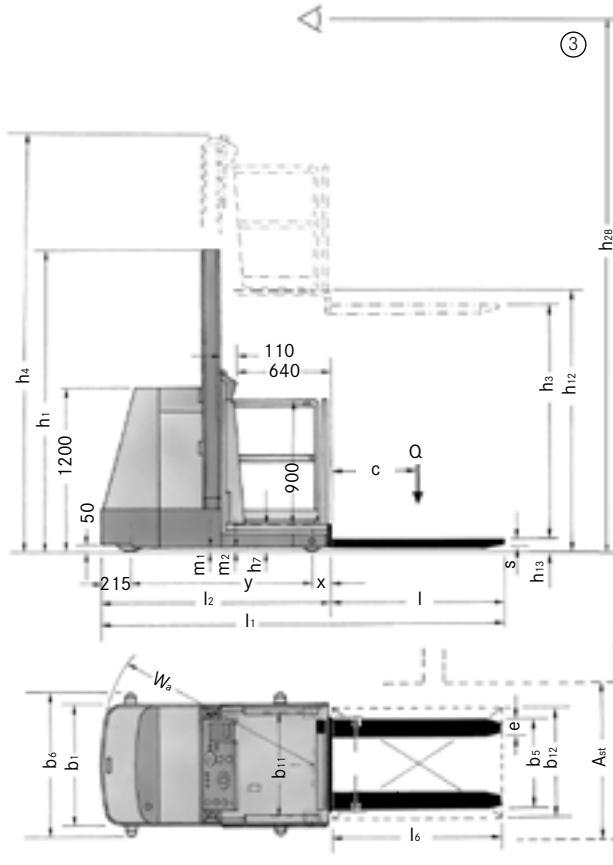
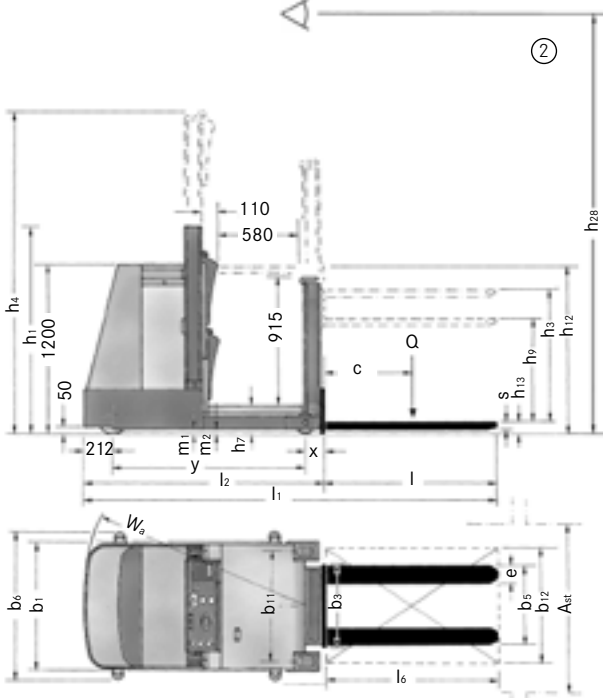
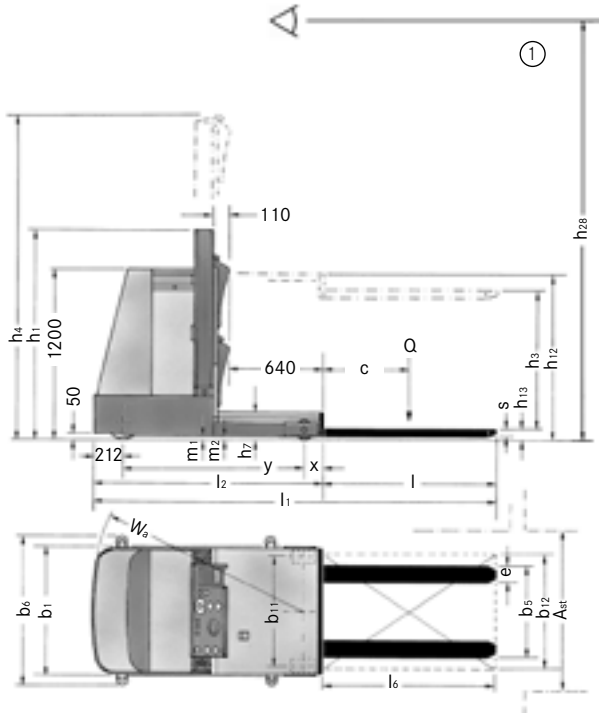


Optional equipment.

Various truck versions

- Low lift with auxiliary lift
- High lift without auxiliary lift
- High lift with auxiliary lift
- Overhead guard
- Driver's compartment lighting
- Work lights
- Rear view mirror with bracket
- Auxiliary fork lift
- 3-piece side barriers
- Cushioning for 3 piece barriers
- 3-piece barrier at the load end
- Combi-Instrument to display battery capacity and operating hours
- Steering wheel with spinner knob
- Mast in two overall heights
- Hoist cut-out
- Console with integral storage facility moves with the driver
- Writing surface with document clip
- Ready for the installation of a data terminal, scanners, etc.
- Data terminal with data transfer, printer, scanner etc.
- Interface to the STILL-Material Flow-Management-System
- Various driver's platform and chassis widths
- Various fork carriages for different pallets
- Mechanical guidance
- Contactless aisle sensing
- Various battery sizes
- Battery compartment with roller track for battery changes to the side
- Various battery trays
- Cable set for replacement battery
- Other options available on enquiry
- Pedestrian operation for order picking from the floor
- Operation from load end or both ends
- Cold store version
- Roller guide with / without aisle sensing for mechanical automatic guidance
- Automatic braking at end of aisle
- Padding to the knee area on the rear wall at the load end
- Other options available on request





In accordance with VDI guidelines 2198, this specification applies to the standard model only.
Alternative tyres, mast types, ancillary equipment, etc. could result in different values.

			STILL①	STILL②	STILL③	STILL④	
			EK 10 single-mast low lift	EK 10 single-mast low lift with auxiliary lift	EK 10 single-mast medium lift without auxiliary lift	EK 10 single-mast medium lift with auxiliary lift	
Characteristics	1.1	Manufacturer					
	1.2	Manufacturer's model designation					
	1.3	Power supply (electric, diesel, petrol, gas, mains electric)		electric	electric	electric	electric
	1.4	Type of control (stand-on, rider seated, order picker)		order picker	order picker	order picker	order picker
	1.5	Capacity / load	Q kg	1000	1000	1000	1000
	1.6	Load centre	c mm	400 / 600	400 / 600	400 / 600	400 / 600
	1.8	Load distance	x mm	130	130	130	130
	1.9	Wheelbase	y mm	1320	1410	1320	1410
	Weight	2.1	Weight (inc. battery)	kg	1475	1575	1810
2.2		Axle loadings laden	drive end / load end kg	315 / 2160	315 / 2260	470 / 2340	470 / 2440
2.3		Axle loadings unladen	drive end / load end kg	880 / 595	880 / 695	1010 / 800	1010 / 900
Wheels / Tyres	3.1	Tyres (rubber, Vulkollan, pneumatic, polyurethane)		Vulkollan	Vulkollan	Vulkollan	Vulkollan
	3.2	Tyre size	drive end mm	Ø 250 / 100	Ø 250 / 100	Ø 250 / 100	Ø 250 / 100
	3.3	Tyre size	load end mm	Ø 150 / 100	Ø 150 / 100	Ø 150 / 100	Ø 150 / 100
	3.5	Wheels, number (x=drive wheel)	drive end / load end	1 x / 2	1 x / 2	1 x / 2	1 x / 2
	3.6	Track width (front)	b ₁₀ mm	0	0	0	0
	3.7	Track width (rear)	load end b ₁₁ mm	768	768	768	768
	Dimensions	4.2	Closed mast height	h ₁ mm	1470	1470	2200
4.3		Free lift	h ₂ mm	-	-	-	-
4.4		Lift height	h ₃ mm	965	965	1700	1700
4.5		Height, mast raised (console / overhead guard)	h ₄ mm	2290	2290	3023	3950
4.7		Height to top of overhead guard	h ₆ mm	-	-	2250	2250
4.8		Platform height	h ₇ mm	200	200	200	200
4.11		Auxiliary lift	h ₉ mm	-	740	-	740
4.14		Height, platform raised	h ₁₂ mm	1165	1165	1900	1900
4.14.1		Picking height (h ₁₂ + 1600 mm)	h ₂₈ mm	2765	2765	3500	3500
4.15		Height lowered	h ₁₃ mm	85	85	85	85
4.19		Overall length without load	l ₁ mm	2465 / 2865	2555 / 2955	2465 / 2865	2555 / 2955
4.20		Length to front face of forks	l ₂ mm	1665	1755	1665	1775
4.21		Overall width of chassis	b ₁ /b ₂ mm	880	880	880	880
4.22		Fork dimensions	s / e / l mm	60 / 120 / 800 or 1200	60 / 120 / 800 or 1200	60 / 120 / 800 or 1200	60 / 120 / 800 or 1200
4.23		Fork carriage to DIN 15173, class / form A, B		welded forks	welded forks	welded forks	welded forks
4.24		Fork carriage width	b ₃ mm	-	640 / 560	640 / 560	640 / 560
4.25		Overall fork width	b ₅ mm	640 / 560	640 / 560	640 / 560	640 / 560
4.27	Width over guide rollers	b ₆ mm	1280 / 1080	1280 / 1080	1280 / 1080	1280 / 1080	
4.31	Floor clearance under mast, ladent ²⁾	m ₁	30	30	30	30	
4.32	Floor clearance, centre of wheelbase ²⁾	m ₂ mm	30	30	30	30	
4.33	Working aisle width, with 800 x 1200 crosswise (l ₆ x b ₁₂)	A _{st} mm	1380	1380	1380	1380	
4.34	Working aisle width, with 800 x 1200 lengthwise (b ₁₂ x l ₆)	A _{st} mm	1080	1080	1080	1080	
4.35	Outer turning radius	W _a mm	1530	1620	1530	1620	
4.42	Transfer aisle width laden, with pallet lengthwise / crosswise	A _u mm	2840 / 3120	2930 / 3210	2840 / 3120	2930 / 3210	
Performance	5.1	Speed	laden / unladen km / h	9.0 ¹⁾	9.0 ¹⁾	9.0 ¹⁾	9.0 ¹⁾
	5.2	Lifting speed	laden / unladen m / s	0.10 / 0.15	0.10 / 0.15	0.10 / 0.15	0.10 / 0.15
	5.3	Lowering speed	laden / unladen m / s	0.25 / 0.24	0.25 / 0.24	0.25 / 0.24	0.25 / 0.24
	5.9	Acceleration time (over 10 m)	s	7.8 / 6.5	7.8 / 6.5	7.8 / 6.5	7.8 / 6.5
	5.10	Brakes		generator	generator	generator	generator
Electric Motors	6.1	Drive motor, rating S2 = 60 min.	kW	2.1	2.1	2.1	2.1
	6.2	Hoist motor, rating S3 = 15%	kW	2.0	2.0	3.0	3.0
	6.3	Battery to IEC 254-2; A, B, C, no		IEC 254-2; A	IEC 254-2; A	IEC 254-2; A	IEC 254-2; A
	6.4	Battery voltage, capacity K5	V/Ah	24 / 440 L (560 L)	24 / 440 L (560 L)	24 / 560 L (440 L)	24 / 560 L (440 L)
	6.5	Battery weight + / - 5% (dependent on manufacturer)	kg	380 (510)	380 (510)	510 (380)	510 (380)
	6.6	Energy consumption according to VDI cycle	kWh / h	2.0	2.0	2.0	2.0
Other	8.1	Drive control		MOSFET	MOSFET	MOSFET	MOSFET
	8.4	Noise peak at operator's ears	dB (A)	69.8	69.8	69.8	69.8

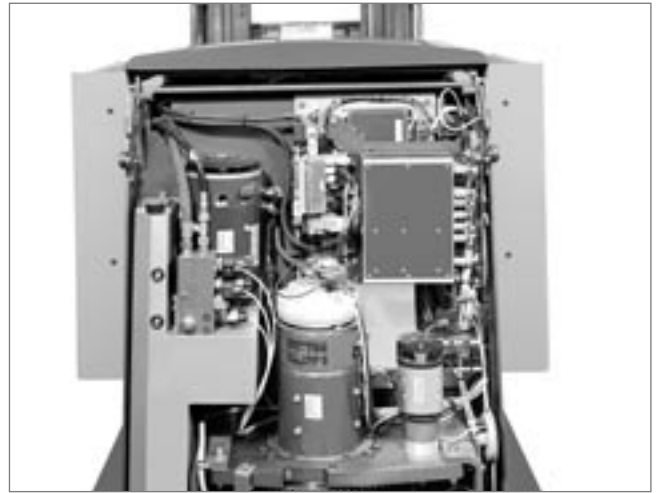
1) Speed profilers in accordance with EN 1726-2

2) Sensors, antennas min. 10 mm



Driver's cab.

- The driver's cab working area is arranged in line with the latest occupational and medical information. Comfort and ergonomics make for high picking performance.
- Shock damping suspension of the driver's cab and appropriately designed cab floor absorb the shocks and vibrations that can occur when driving, hoisting and lowering.
- Rounded shape allows unhindered movement when order picking. Large, padded backrest allows relaxed driving and standing.
- Low step into the driver's cab and a 3-piece cab barrier make order picking easier at floor level and increase the safety of the operator.
- Operating panel with generously dimensioned controls for grip and position tolerant operation. Due to their unmistakable and obvious layout, all main functions are possible, individually or simultaneously, without changing the position of the hand. The key switch and all adjustment and operating components of the truck are integrated into the housing so that order picking is possible even when they are installed at the load end.
- Mast or load end - the operating panel and the backrest can be used from either side. Rounded contours conducive to order picking and the working area available at the load end make this option possible.
- Integral display console directly in the driver's field of view indicates only those functions already active and relevant current states. Displays of operating hours, lift height, plus operator and service information can be selected using the touch-key pad.
- Extra operating panel for special functions and for the lighting fitted on the overhead guard. The fluorescent tubes can be switched on individually and their illumination directed onto the sides of the racking, the load carrier and / or to illuminate the driver's cab.
- Auxiliary functions such as guidance systems or the mobile personal protection system are provided for in the operating panel.
- Panelling with integral storage facilities for documents and writing materials plus space for bottles, drinks cans or tools.
- Inner walls are prepared for easy fitting of additional order picking aids and tools.
- A plastic screen fitted between the mast uprights protects from draughts and noise.
- Overhead guard with easily accessible integral abseil equipment. A clear view upwards thanks to open construction. Integration and fitting of accessories is a simple matter.



Steering.

Electric energy saving steering with defined mid-position for fatigue free operation. The steering angle is shown on the control panel.

Guidance systems.

- Automatic rail or contactless inductive aisle guidance takes over the steering function, leaving the driver free to concentrate fully on his work.
- With rail guided trucks the drive wheel is set automatically for straight ahead travel.

Masts.

- Compact mast construction guarantees stability and torsional stiffness so that the operator feels comfortable and safe even at height.
- Excellent visibility through and around the mast makes for the greatest safety when driving. Due to the inclined rear hood, the view onto the travel path is considerably improved even for shorter drivers.
- Integral electrical and hydraulic end of stroke damping for low-shock operation.

Initial lift.

- When order picking the pallet can be moved to the most convenient working height.
- Due to the compact design of the mast and carriage, the lost length is minimised allowing maximum utilisation of the stacking area right up to the edge of the pallet.
- The initial lift integrated into the back wall of the cab provides generous room for movement at the sides of the racking and optimal access into the shelving and onto the edges of the pallet.
- Integral, load-end operation of the auxiliary lift for optimal control when order picking without having to turn round.

Hydraulics.

- The proven proportional valves together with a modern powerful MOSFET hoist pulse controller give particularly sensitive movements with maximum performance and effectiveness.
- Demand dependent delivery of the oil flow, reduced hoist motor speeds and automatic shut off of the pump all contribute to significant energy savings.
- Lowering and end of stroke damping gives smooth and gentle mast descent to ground level.
- Ramps and performance parameters are optimally adjustable to the order picking process.

Drive.

- The basis for a powerful and economical drive concept is a low wear, low maintenance drive unit combined with the latest MOSFET technology, featuring off-load switching for sensitive driving independent of load.
- High level of economy due to the disappearance of the braking and direction contactors.
- Monitoring and display of the drive status for effective preventative maintenance.
- High degree of driver comfort thanks to jolt-free starting and smooth acceleration up to maximum speed with high torque and efficiency.
- The powerful drive in conjunction with a bevel and spur gearbox provides an optimal combination of quiet running, high load capacity and long life.

Brakes.

The brake system is virtually wear-free in operation and comprises two elements: A spring brake to secure the truck at a standstill and a generator service brake.

- Very high life expectancy thanks to the wear-free generator braking.
- High recovery of energy in generator mode.
- The spring loaded brake is only used in low wear applications such as parking and holding.
- Different braking parameters set for deadman or plugging operation give a high level of driving comfort.

Optispeed control concept.

The control unit, consisting of only a small number of components, is clearly laid out, very reliable and constructed to a high safety standard. At its heart is the modular controller which, in conjunction with the CAN-bus and the integral height measurement system, ensures optimal functional processes.

- No relays or contactors in the peripheral equipment thanks to the central processing of the input/output signals and the internal CAN-bus.
- Safe control of end of stroke positions with pre-stored ramp functions make work easier.
- Energy recovery for longer periods of use and a higher pallet turn round. This reduces the energy costs.
- Adjustments to optimise the application are simple, for a maximum turn round of goods.
- Different speeds can be set for forward and backward travel.
- Simultaneous movements such as driving and hoisting are also provided for outside the aisles at maximum permissible speed.
- Diagnostic and service interfaces make for a simple procedure when configuring and setting parameters using the Service laptop.
- Low spares holding costs due to the reduced number and uniform controller components.

Battery.

- For multi-shift operation the battery can be changed from the side using a forklift truck or a roller track.
- Battery interlock easily accessible from above. If the interlock is open the battery lid cannot be closed – another safety feature when changing batteries.

Automation components.

The order picker can be adapted to special working conditions and factors by the use of different components.

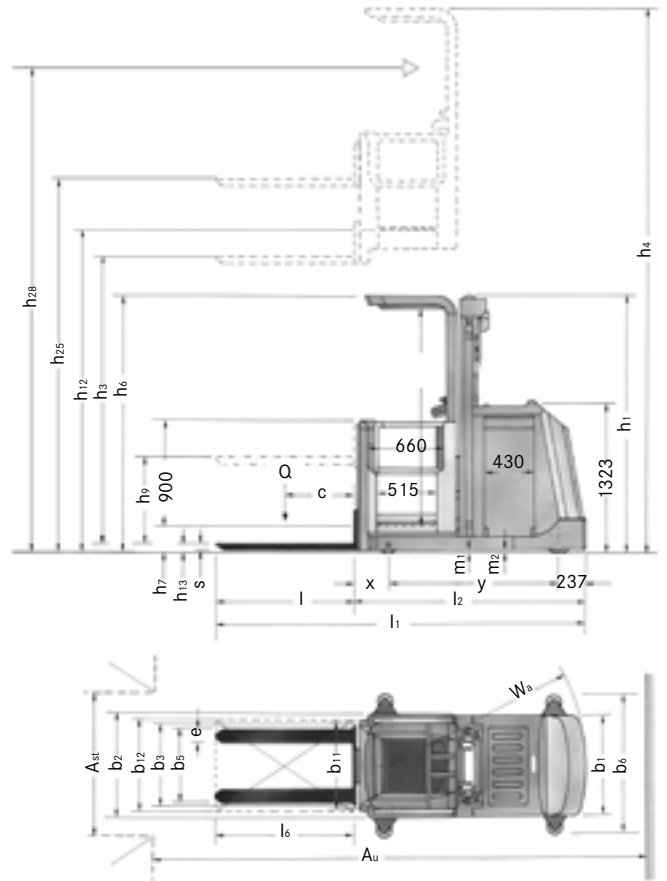
- Integration into the STILL Material flow Management System by the use of radio or infra-red increases order picking performance and economy by the logistically optimal, paperless transmission of orders to the driver.

Safety and quality.

- Trucks are built to EC Directive 98 / 37 / EC and carry the CE symbol.
- STILL is certified to ISO 9001.

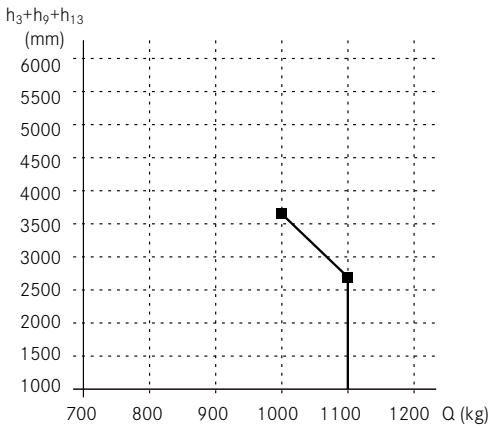
Optional equipment.

- Automatic end of aisle braking – different variants available.
- Hoist cut-outs.
- Various drive cut-outs.
- Roof cut-out switch.
- Automatic guidance, rail or inductive.
- Contactless aisle sensing for mechanical or inductive automatic guidance.
- Operation at load end and / or mast end.
- Lighting can be set to illuminate the racking or the driver's cab.
- Lighting onto the pallet, adjustable
- Fan in overhead guard.
- Stepless height adjustment of the mast-end operating panel.
- Mobile Personal Safety Equipment.
- Prepared for installation of a data terminal, scanner, etc.
- Data terminal with data transfer, printer, scanner and interface to the STILL Material Flow Management System.
- Initial lift of the forks.
- A variety of overall heights for single, telescopic and triplex masts.
- Mast bracing.
- Rear view mirror.
- A variety of chassis widths.
- FEM 1 fork carriage for adjustable forks.
- A variety of fork carriages for different pallets.
- A variety of driver's cab widths.
- A variety of overhead guard heights.
- Writing surface / document clip.
- Macrolon cover for overhead guard.
- Rail for battery compartment lid.
- Battery roller track for battery changing from the side.
- A variety of battery trays.
- Cable set for spare battery.
- Socket for connection of external equipment.
- Voltage supply on overhead guard for radio, cassette deck, etc.
- 3 safety barriers on the load side.
- Padding for safety barriers.
- Cold store version.
- Other special equipment possible on request.
- Walk-on pallet.
- Cover for the guard rail at load end, with storage trays and replaceable cushion for the back support.



Capacity diagram.

Single-mast, capacity at $c = 400$ mm load centre

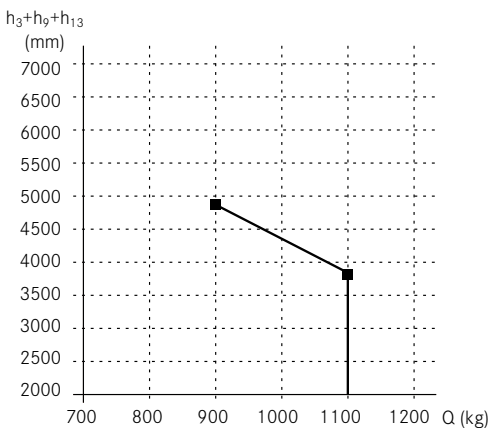


Single-mast.

h_1	h_{25} ($h_3+h_9+h_{13}$)	h_{24} (h_3+h_9)	h_3	h_9	h_{12} (h_3+h_7)	h_{28} ($h_{12}+1600$)	h_4 (h_3+h_6)
mm	mm	mm	mm	mm	mm	mm	mm
3,400	3,655	3,590	2,850	740	3,090	4,690	5,190
3,300	3,555	3,490	2,750	740	2,990	4,590	5,090
3,200	3,455	3,390	2,650	740	2,890	4,490	4,990
3,100	3,355	3,290	2,550	740	2,790	4,390	4,890
3,000	3,255	3,190	2,450	740	2,690	4,290	4,790
2,900	3,155	3,090	2,350	740	2,590	4,190	4,690
2,800	3,055	2,990	2,250	740	2,490	4,090	4,590
2,700	2,955	2,890	2,150	740	2,390	3,990	4,490
2,600	2,855	2,790	2,050	740	2,290	3,890	4,390
2,500	2,755	2,690	1,950	740	2,190	3,790	4,290
2,450	2,705	2,640	1,900	740	2,140	3,740	4,240
2,350	2,605	2,540	1,800	740	2,040	3,640	4,140
2,250	2,505	2,440	1,700	740	1,940	3,540	4,040

Capacity diagram.

Telescopic-mast, capacity at $c = 400$ mm load centre



Telescopic-mast.

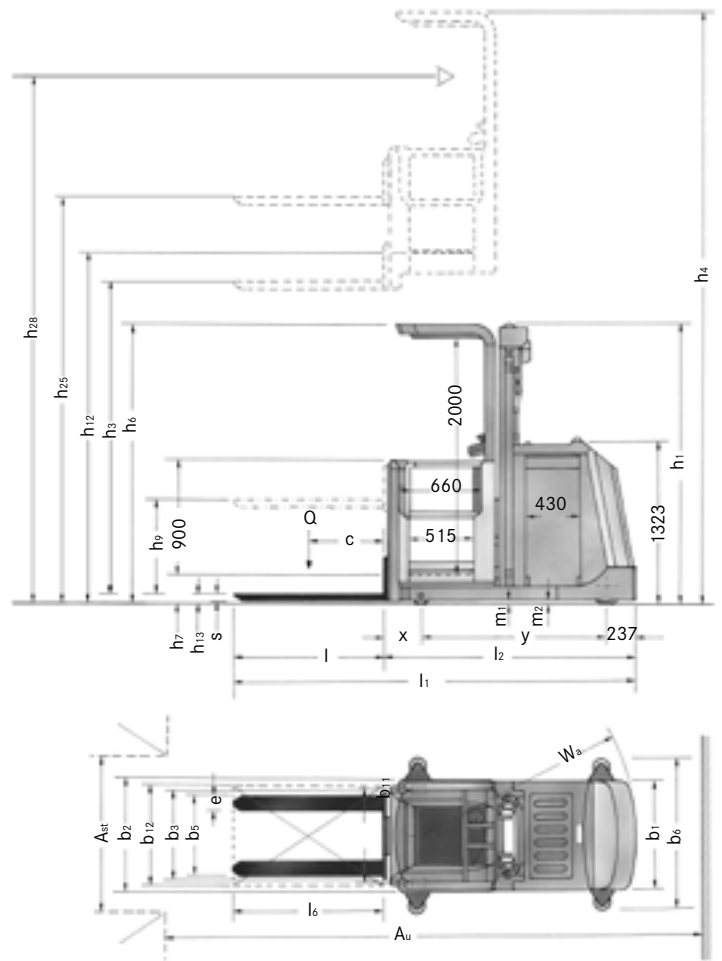
h_1	h_{25} ($h_3+h_9+h_{13}$)	h_{24} (h_3+h_9)	h_3	h_9	h_{12} (h_3+h_7)	h_{28} ($h_{12}+1600$)	h_4 (h_3+h_6)
mm	mm	mm	mm	mm	mm	mm	mm
2,900	4,930	4,865	4,125	740	4,365	5,965	6,465
2,800	4,730	4,665	3,925	740	4,165	5,765	6,265
2,700	4,530	4,465	3,725	740	3,965	5,565	6,065
2,600	4,330	4,265	3,525	740	3,765	5,365	5,865
2,500	4,130	4,065	3,325	740	3,565	5,165	5,665
2,450	4,030	3,965	3,225	740	3,465	5,065	5,565
2,350	3,830	3,765	3,025	740	3,265	4,865	5,365
2,250	3,630	3,565	2,825	740	3,065	4,665	5,165
2,250	3,430	3,365	2,625	740	2,865	4,465	4,965
2,250	3,230	3,165	2,425	740	2,665	4,265	4,765
2,250	3,030	2,965	2,225	740	2,465	4,065	4,565

In accordance with VDI guidelines 2198, this specification applies to the standard model only.
Alternative tyres, mast types, ancillary equipment, etc. could result in different values.

			STILL	
			EK 11 Single-mast	EK 11 Telescopic-mast
Characteristics	1.1	Manufacturer		
	1.2	Manufacturer's model designation		
	1.3	Power supply (electric, diesel, petrol, gas, mains electric)		electric
	1.4	Type of control (hand, pedestrian, stand-on, rider seated, order picker)		stand-on
	1.5	Capacity / load	Q kg	1100
	1.6	Load centre	c mm	400 / 600
	1.8	Load distance	x mm	298
	1.9	Wheelbase	y mm	1447
	Weight	2.1	Weight (inc. battery)	
2.2		Axle loadings laden	drive end / load end	kg
2.3		Axle loadings unladen	drive end / load end	kg
Wheels Tyres	3.1	Tyres (rubber, Vulkollan, pneumatic, polyurethane)		Vulkollan
	3.2	Tyre size	drive end	mm
	3.3	Tyre size	load end	mm
	3.5	Wheels, number (x=drive wheel)	drive end / load end	
	3.6	Track width	drive end	b ₁₀ mm
	3.7	Track width	load end	b ₁₁ mm
	Dimensions	4.2	Closed mast height	h ₁
4.4		Lift height	h ₃	mm
4.5		Height, mast raised	h ₄	mm
4.7		Height to top of overhead guard (cabin)	h ₆	mm
4.8		Platform height	h ₇	mm
4.11		Auxiliary lift	h ₉	mm
4.14		Height, platform raised	h ₁₂	mm
4.14.1		Picking height (h ₁₂ + 1600 mm)	h ₂₈	mm
4.15		Height lowered	h ₁₃	mm
4.19		Overall length	l ₁	mm
4.20		Length to front face of forks	l ₂	mm
4.21		Overall width of chassis	b ₁ /b ₂	mm
4.22		Fork dimensions	s / e / l	mm
4.23		Fork carriage to DIN 15173, class / form A, B		welded forks
4.24		Fork carriage width	b ₃	mm
4.25		Overall fork width	b ₅	mm
4.27		Width over guide rollers	b ₆	mm
4.31	Floor clearance under mast, laden ²⁾	m ₁		
4.32	Floor clearance, centre of wheelbase ²⁾	m ₂	mm	
4.34	Working aisle width, with 800 x 1200 lengthwise (b ₁₂ x l ₆)	A _{st}	mm	
4.35	Outer turning radius	Wa	mm	
4.42	Transfer aisle width laden, with pallet lengthwise / crosswise (b ₁₂ x l ₆)	A _u	mm	
Performance	5.1	Speed	laden / unladen	km / h
	5.2	Lifting speed	laden / unladen	m / s
	5.3	Lowering speed	laden / unladen	m / s
	5.9	Acceleration time (over 10 m)	laden / unladen	s
	5.10	Brakes		generator
Electric Motors	6.1	Drive motor, rating S2 = 60 min.		kW
	6.2	Hoist motor, rating S3 = 15%		kW
	6.3	Battery to IEC 254-2; A, B, C, no		IEC 254-2; A
	6.4	Battery voltage, capacity Ks	V / Ah	48 / 420 L
	6.5	Battery weight +/- 5% (dependent on manufacturer)	kg	720
Other	8.1	Drive control		MOSFET
	8.4	Noise peak at operator's ears		dB (A)

1) Speed profilers in accordance with EN 1726-2

2) Sensors, antennas min. 10 mm



Telescopic-mast.

h_1	h_{25} ($h_3+h_9+h_{13}$)	h_{24} (h_3+h_9)	h_3	h_9	h_{12} (h_3+h_7)	h_{28} ($h_{12}+1600$)	h_4 (h_3+h_6)
mm	mm	mm	mm	mm	mm	mm	mm
4,400	7,530	7,465	6,725	740	6,965	8,565	9,065
4,300	7,330	7,265	6,525	740	6,765	8,365	8,865
4,200	7,130	7,065	6,325	740	6,565	8,165	8,665
4,100	6,930	6,865	6,125	740	6,365	7,965	8,465
4,000	6,730	6,665	5,925	740	6,165	7,765	8,265
3,900	6,530	6,465	5,725	740	5,965	7,565	8,065
3,800	6,410	6,345	5,605	740	5,845	7,445	7,945
3,700	6,290	6,225	5,485	740	5,725	7,325	7,825
3,600	6,170	6,105	5,365	740	5,605	7,205	7,705
3,500	6,050	5,985	5,245	740	5,485	7,085	7,585
3,400	5,930	5,865	5,125	740	5,365	6,965	7,465
3,300	5,730	5,665	4,925	740	5,165	6,765	7,265
3,200	5,530	5,465	4,725	740	4,965	6,565	7,065
3,100	5,330	5,265	4,525	740	4,765	6,365	6,865
3,000	5,130	5,065	4,325	740	4,565	6,165	6,665
2,900	4,930	4,865	4,125	740	4,365	5,965	6,465
2,800	4,730	4,665	3,925	740	4,165	5,765	6,265
2,700	4,530	4,465	3,725	740	3,965	5,565	6,065
2,600	4,330	4,265	3,525	740	3,765	5,365	5,865
2,500	4,130	4,065	3,325	740	3,565	5,165	5,665
2,450	4,030	3,965	3,225	740	3,465	5,065	5,565
2,350	3,830	3,765	3,025	740	3,265	4,865	5,365
2,250	3,630	3,565	2,825	740	3,065	4,665	5,165

Triplex-mast.

h_1	h_{25} ($h_3+h_9+h_{13}$)	h_{24} (h_3+h_9)	h_3	h_2 (h_1-h_6)	h_9	h_{12} (h_3+h_7)	h_{28} ($h_{12}+1600$)	h_4 (h_3+h_6)
mm	mm	mm	mm	mm	mm	mm	mm	mm
3,900	9,445	9,380	8,640	1,560	740	8,880	10,480	10,980
3,800	9,145	9,080	8,340	1,460	740	8,580	10,180	10,680
3,700	8,845	8,780	8,040	1,360	740	8,280	9,880	10,380
3,600	8,545	8,480	7,740	1,260	740	7,980	9,580	10,080
3,500	8,245	8,180	7,440	1,160	740	7,680	9,280	9,780
3,400	7,945	7,880	7,140	1,060	740	7,380	8,980	9,480
3,300	7,785	7,720	6,980	960	740	7,220	8,820	9,320
3,300	7,625	7,560	6,820	860	740	7,060	8,660	9,160
3,100	7,465	7,400	6,660	760	740	6,900	8,500	9,000
3,000	7,305	7,240	6,500	660	740	6,740	8,340	8,840
2,900	7,145	7,080	6,340	560	740	6,580	8,180	8,680
2,800	6,845	6,780	6,040	460	740	6,280	7,880	8,380
2,700	6,545	6,480	5,740	360	740	5,980	7,580	8,080
2,600	6,245	6,180	5,440	260	740	5,680	7,280	7,780
2,500	5,945	5,880	5,140	160	740	5,380	6,980	7,480
2,450	5,795	5,730	4,990	110	740	5,230	6,830	7,330
2,350	5,495	5,430	4,690	10	740	4,930	6,530	7,030
2,250	5,195	5,130	4,390	-	740	4,630	6,230	6,730
2,250	5,045	4,980	4,240	-	740	4,480	6,080	6,580
2,250	4,895	4,830	4,090	-	740	4,330	5,930	6,430
2,250	4,745	4,680	3,940	-	740	4,180	5,780	6,280
2,250	4,595	4,530	3,790	-	740	4,030	5,630	6,130
2,250	4,445	4,380	3,640	-	740	3,880	5,480	5,980
2,250	4,295	4,230	3,490	-	740	3,730	5,330	5,830
2,250	4,145	4,080	3,340	-	740	3,580	5,180	5,680
2,250	3,995	3,930	3,190	-	740	3,430	5,030	5,530
2,250	3,845	3,780	3,040	-	740	3,280	4,880	5,380
2,250	3,695	3,630	2,890	-	740	3,130	4,730	5,230
2,250	3,885	3,820	3,080	-	740	3,320	4,920	5,420

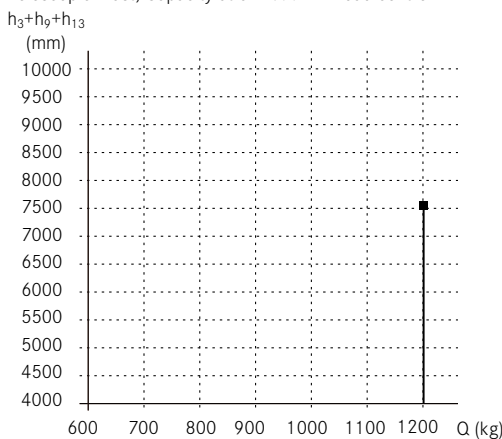
In accordance with VDI guidelines 2198, this specification applies to the standard model only.
Alternative tyres, mast types, ancilliary equipment, etc. could result in different values.

				STILL	STILL		
Characteristics	1.1	Manufacturer					
	1.2	Manufacturer's model designation		EK 12 Telescopic-mast	EK 12 Triplex-mast		
	1.3	Power supply (electric, diesel, petrol, gas, mains electric)		electric	electric		
	1.4	Type of control (hand, pedestrian, stand-on, rider seated, order picker)		stand-on	stand-on		
	1.5	Capacity / load	Q	kg	1200	1200	
	1.6	Load centre	c	mm	400 / 600	400 / 600	
	1.8	Load distance	x	mm	343	388	
	1.9	Wheelbase	y	mm	1557	1557	
	Weight	2.1	Weight (inc. battery)		kg	2950	3150
2.2		Axle loadings laden	drive end / load end	kg	780 / 3370	880 / 3470	
2.3		Axle loadings unladen	drive end / load end	kg	1520 / 1430	1690 / 1540	
Wheels Tyres	3.1	Tyres (rubber, Vulkollan, pneumatic, polyurethane)			polyurethane	polyurethane	
	3.2	Tyre size	drive end	mm	Ø 310 x 125	Ø 310 x 125	
	3.3	Tyre size	load end	mm	Ø 170 x 152	Ø 170 x 152	
	3.5	Wheels, number (x=drive wheel)	drive end / load end		1 x / 2	1 x / 2	
	3.6	Track width	drive end	b ₁₀	mm	-	-
	3.7	Track width	load end	b ₁₁	mm	900	900
	Dimensions	4.2	Closed mast height		h ₁	mm	2250
4.3		Free lift		h ₂	mm	-	-
4.4		Lift height		h ₃	mm	2825	4390
4.5		Height, mast raised		h ₄	mm	5165	6730
4.7		Height to top of overhead guard (cabin)		h ₆	mm	2340	2340
4.8		Platform height		h ₇	mm	240	240
4.11		Auxiliary lift		h ₉	mm	740	740
4.14		Height, platform raised		h ₁₂	mm	3065	4630
4.14.1		Picking height (h ₁₂ + 1600 mm)		h ₂₈	mm	4665	6230
4.15		Height lowered		h ₁₃	mm	65	65
4.19		Overall length		l ₁	mm	2937	2982
4.20		Length to front face of forks		l ₂	mm	2137	2182
4.21		Overall width of chassis		b ₁ /b ₂	mm	1180 / 1200	1180 / 1200
4.22		Fork dimensions		s / e / l	mm	60 / 120 / 800	60 / 120 / 800
4.23		Fork carriage to DIN 15173, class / form A, B				welded forks	welded forks
4.24		Fork carriage width		b ₃	mm	660	660
4.25		Overall fork width		b ₅	mm	640	640
4.27		Width over guide rollers		b ₆	mm	1220	1220
4.31	Floor clearance under mast, laden ²⁾		m ₁	mm	30	30	
4.32	Floor clearance, centre of wheelbase ²⁾		m ₂	mm	50	50	
4.33	Working aisle width with 800 x 1200 lengthwise (l ₆ x b ₁₂)		A _{st}	mm	1380	1380	
4.35	Outer turning radius		Wa	mm	1795	1795	
4.42	Transfer aisle width, with pallet lengthwise / crosswise (l ₆ x b ₁₂)		A _u	mm	3290	3330	
Performance	5.1	Speed	laden / unladen	km / h	11.0 ¹⁾ / 11.0 ¹⁾	11.0 ¹⁾ / 11.0 ¹⁾	
	5.2	Lifting speed	laden / unladen	m / s	0.30 / 0.39	0.30 / 0.37	
	5.3	Lowering speed	laden / unladen	m / s	0.35 / 0.35	0.35 / 0.35	
	5.9	Acceleration time (over 10 m)	laden / unladen	s	7.0 / 7.0	7.0 / 7.0	
	5.10	Brakes			generator	generator	
Electric Motors	6.1	Drive motor, rating S2 = 60 min.		kW	3.4	3.4	
	6.2	Hoist motor, rating S3 = 15%		kW	7.0	7.0	
	6.3	Battery to IEC 254-2; A, B, C, no			IEC 254-2; A	IEC 254-2; A	
	6.4	Battery voltage, capacity K ₅		V / Ah	48 / 420 L	48 / 420 L	
	6.5	Battery weight + / - 5% (dependent on manufacturer)		kg	720	720	
Other	8.1	Drive control			MOSFET	MOSFET	
	8.4	Noise peak at operator's ears		dB (A)	< 68	< 68	

1) Speed profilers in accordance with EN 1726-2
2) Sensoren, Antennen min. 10 mm

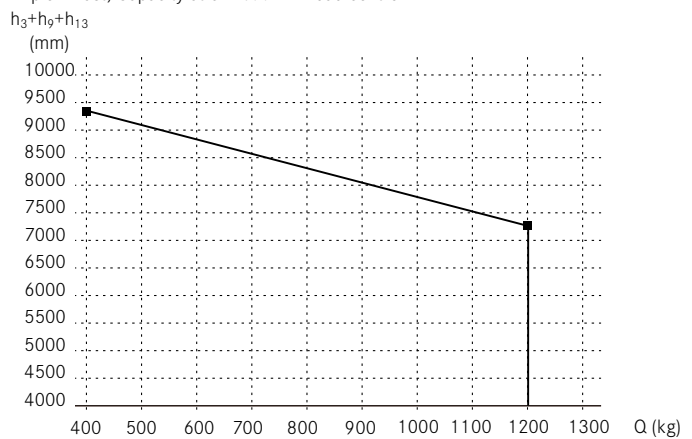
Capacity diagram.

Telescopic-mast, Capacity at c = 400 mm load centre



Capacity diagram.

Triplex-mast, Capacity at c = 400 mm load centre



EK 10-LS, EK 10-BS.

EK 10-LS.

EK 10 with load end operating panel.

This variant of the EK 10 low lift order picker offers a load end operating panel as a specific feature of its equipment, giving an optimal view of the load and in the direction of travel. Generously dimensioned standing and working area and user friendly shape of the operating panel allow optimal order picking. The integral hand grip and leaning position provide a secure support when driving and shunting in very tight spaces. Due to the load end drive direction the order picker can approach the pallets comfortably, safely and with precision and serve interfaces such as chain conveyors, roller tracks, transfer stations and block stacking. The load end alignment also gives advantages when the level of pallet turnover is high or pallets have to be put into and taken out of stock.



EK 10-BS.

Equipped for all eventualities: EK 10 with a second operating panel at the load end and equipment for pedestrian operation.

This variant of the EK 10 low lift order picker features a second operating panel mounted at the load end of the stand-on platform. The spacious standing and working area together with the ergonomically contoured operating panel provides optimal conditions for efficient order picking. Integral hand grip and a facility for leaning make for a safe posture when driving and shunting in tight spaces. Selection of the operating panel required – mast end or load end – is through dead man switches in the footplate area of the stand-on platform. The dead man switches are positioned so as to activate the relevant operating panel when depressed. Thus the panel suited to the required driving direction is brought into operation automatically and safely. For safety reasons it is not possible for both panels to be active at the same time. The order picker can now perform normal order picking in the mast-end direction, and in the load-end direction can comfortably, safely and precisely approach pallets and interfaces such as chain conveyors, roller tracks, transfer points and block stores. The load-end equipment also offers an advantage when the proportion of pallet handling is high or if pallets are being put into and taken out of stock with this machine. All in all the availability of two operating panels provides a very high level of flexibility in use and accommodates a high changeover of drivers. Two control panels allow a high degree of flexibility to suit individual driver preferences, thereby increasing job satisfaction. When the working aisles are wide enough, the person picking the goods can control the truck whilst walking alongside. Travel movement takes place only as long as the drive switch is being actuated. In pedestrian operated mode, the steering is monitored to ensure a straight ahead position. Drive is only permitted with the spinner knob or the steering wheel in the centre position, which equates to the straight ahead position of the drive wheel. The standard travel speed in pedestrian mode is 2.5 km/h but this can be changed if the user desires. For stand-on operation the external drive switches are interlocked.



EK 11 / 12-BP.

EK Order Picker with protective cage for walk-on pallet.

Depending on the goods being picked, it is sometimes necessary to use the pallet to give additional room for movement when working with an order picker.

This requires a specially constructed driver's cab with extra barriers, with or without auxiliary lift. On the former, the auxiliary lift is controlled by two cylinders but can only be used when the protective cage is not being raised.

The pallet to be walked on will be locked and during this time the auxiliary lift, if fitted, will be shut off by a pallet switch.

When stepping onto the pallet above a standing height (h12) of 1200mm, the protective cage is mandatory.





For further information on the EK
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