

EK Technical Data.

Vertical order picker



Better motivation means better performance.

The driver and his working environment influence order picking performance. STILL helps him/her to achieve 100% by providing a mobile workplace with optimal working conditions. The EK 11 I and EK 12 I models are equipped as standard with OPTISPEED, the advanced truck control concept.

Try this platform/driver's cab.

Body-matched contours are designed to protect operators from injury while providing plenty of space for all order picking tasks. Entry and exit, floor level order picking, access into the racking and also onto the pallet – all these aspects have been considered in the truck's design. Padded, softly-moulded surfaces and contours provide a pleasant environment conducive to maximum throughput under all operating conditions.

Operation and displays.

Clearly and simply presented, with special orientation to the order picking tasks. All functions are unmistakable and logically laid out to facilitate operation with one hand.

EK 10: the handle offers additional support when accelerating, braking or travelling round bends. The intelligent display panel shows the functions and states which are currently of interest.

EK 11 I and EK 12 I: The posture-tolerant, multi-function grip makes operating these trucks a pleasing experience. Individual postures when operating and driving are possible without repositioning the operating unit. Thus the driver is actively supported and relieved of strain in his working environment. The logically presented operating environment featured in the STILL vertical order pickers and order picking stackers ensures the maximum flexibility and proves a great advantage where driver acceptance is concerned.

The equipment.

A fully equipped and well-designed driver's platform/driver's cab is a basic requirement for effective order picking. Integrated storage facilities are provided: on the EK 10 there is a tray which rises with the platform and on the EK 11 I and EK 12 I models, the storage tray is fitted to the guard rail; these provide ample space for tools, as well as for office documents and packing materials. Thus all needs and demands in the order picking environment are fulfilled.

EK 11 I and EK 12 I: depending on the cab width a choice of additional accessories can be integrated, especially for the order picking process. This means a custom-designed workplace to suit the user's requirements.

A workplace with comfort.

This is not a luxury, but a compelling necessity for a healthy working life. The driver's compartment is user-friendly, robust, and designed to help maintain a clean and tidy working environment. Thanks to the sprung mounting, shock absorbent floor covering and damped end-of-lift positions, shocks and vibrations are minimised. This provides maximum protection and reduces strain on the operator. Protected against noise and draughts, with good visibility characteristics, the mobile workplace offers an environment which provides additional motivation for the work-oriented employee.

Technology as a service.

The modern, simple and performance-optimised technical design supports the driver and subordinates itself to the needs of order picking. Thus all movements are provided with adjustable ramp functions for maximum acceleration, retardation and maximum speed. Optimal application matching – to the goods being picked and to the warehouse environment – is easily possible through the central service and diagnostics interface.

- More work.
- Lower maintenance costs.
- Improved energy management.
- Increased effectiveness and economy of your company.

The new EK generation – Model 11 I and 12 I with OPTISPEED.

EK order picking trucks for

- Motivated employees.
- High picking performance.
- Economic investment.

Customer service is at the pinnacle of this truck concept and combines:

- Elegance due to the shapely design.
- Ergonomics due to shape and equipment.
- Effectiveness due to simplicity and robustness.
- Economy in the price/performance ratio.



Driver's platform.

- Ergonomic platform with low step, ideal for order picking, with shock absorbent mountings and non-slip, vibration-damping floor and integral dead-man switch.
- Operating console at the mast end with display panel for function status, wheel position and special functions.
- Handle and operation, for all main functions (including horn), possible individually and simultaneously without changing the grip, also for operation without automatic guidance there is an integral emergency off button and key switch.

Steering.

Electrical steering with a defined central latching position of the steering for fatigue-free work and energy-saving steering. The steering lock is displayed on the display panel. The steering angle monitor guarantees reliable, high-performance driving characteristics.

Masts.

- Single lift masts.
- Compact mast construction provides stability and torsional stiffness for safe and secure operation.
- Excellent visibility through and past the mast for the highest safety when driving. Thanks to the inclined rear hood the visibility onto the roadway is considerably improved even for shorter drivers.
- End of stroke damping reduces shocks.

Chassis.

Torsionally rigid steel construction with large load rollers, drive unit compartment covered with a steel hood which is hinged upwards by pressurised gas dampers. Battery cover also in steel, hinged.

Drive unit.

- The basis for a powerful, robust and economical drive concept is the wear-free and maintenance-free drive unit for sensitive driving response independent of load.
- Highly economical due to the lack of braking and direction contactors.
- Monitoring of the drive states for effective preventive maintenance.
- Great driving comfort due to smooth starting and stepless acceleration right up to maximum speed.
- The efficient drive unit in conjunction with a spur bevel gear transmission offers an optimum relationship of smooth running, high load bearing and long life.

Hydraulics.

- For hoisting and lowering, a combination of solenoid valves with pressure accumulator is actuated by push buttons.
- A pressure relief valve protects the system from overload.
- A hydraulic lowering damper in the cylinder allows the cab, with or without load, to move gently to its end position. This protects the goods and takes the strain off the operator.

Brakes.

- Wear-free generator service brake.
- High energy recovery in generator mode.
- Spring-loaded brake only used when parking and securing, so hardly any wear.
- Individually adjustable braking parameters for deadman or plugging operations offer high driving comfort.

Controller.

The controller, which has few components, is logically laid out and offers great reliability and a high safety standard.

- No relay or contactor equipment in the peripherals due to the central processing of the input/output signals.
- Energy recovery for longer usage periods, higher turnaround of pallets and lower energy costs.
- Adjustments optimised to the application are easily possible for maximum turnaround of goods.
- Simultaneous movements such as driving and lifting are also provided outside the aisle at maximum permissible speeds.
- Diagnostics and service interface offers a simple process when configuring and setting parameters via the service laptop.
- Low spares holding costs due to fewer and uniform controller components.

Battery.

- For multi-shift use, battery changes are possible from above with a hoist or from the side with a roller track.
- Battery interlock on the side of the chassis.
- Combi instrument for battery capacity and operating hours display.

Automatic guidance.

The driver can concentrate fully on his work because the mechanical automatic guidance takes over the job of steering within the racking.

Auxiliary lift.

- When order picking, the pallet is brought to the most suitable depositing height.
- Thanks to optimally-matched hoist carriage and fork carriage, the wasted area is minimised. This allows optimal depositing even at the edge of the pallet.
- Forks permanently welded to the platform or hoist carriage.

Safety, Design and Ergonomics.

- Safety package conforming to CE.
- All drive and hoist movements are secured through a deadman foot switch.
- Rounded, soft shapes, plus smooth and padded surfaces, with many integral storage facilities.

Service and Maintenance.

- Service Tool Box enables simple configuration, parameter setting and diagnosis.
- Long term memory for malfunctions and display for fault code.
- Central service and diagnostics interface for connection to a STILL Service laptop.
- Drive unit compartment and rear hood designed for good access even in the aisle.

Automation components.

The vertical order picker can be adapted to special working conditions:

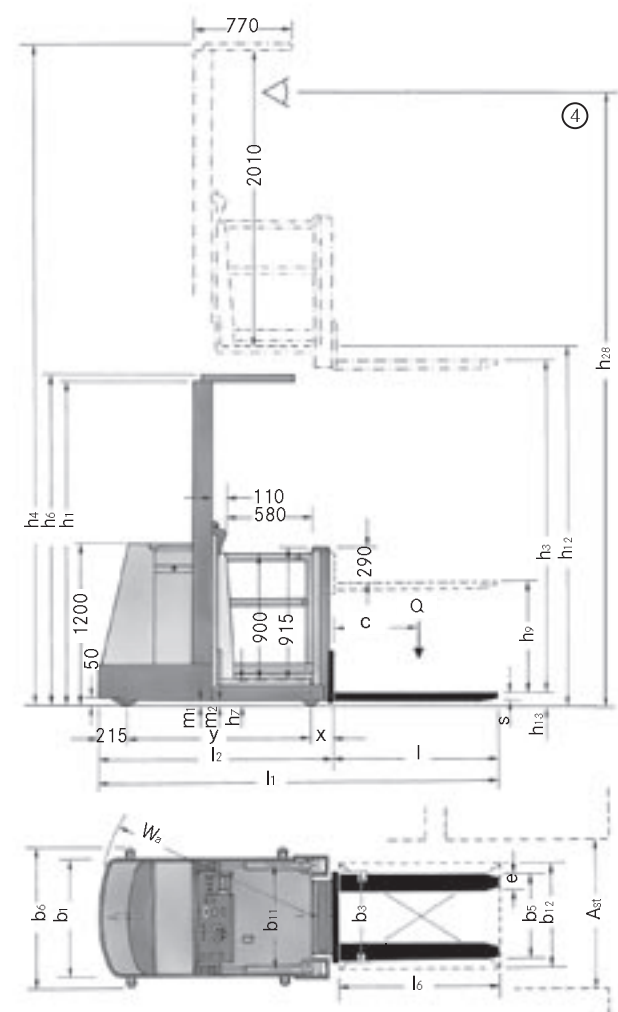
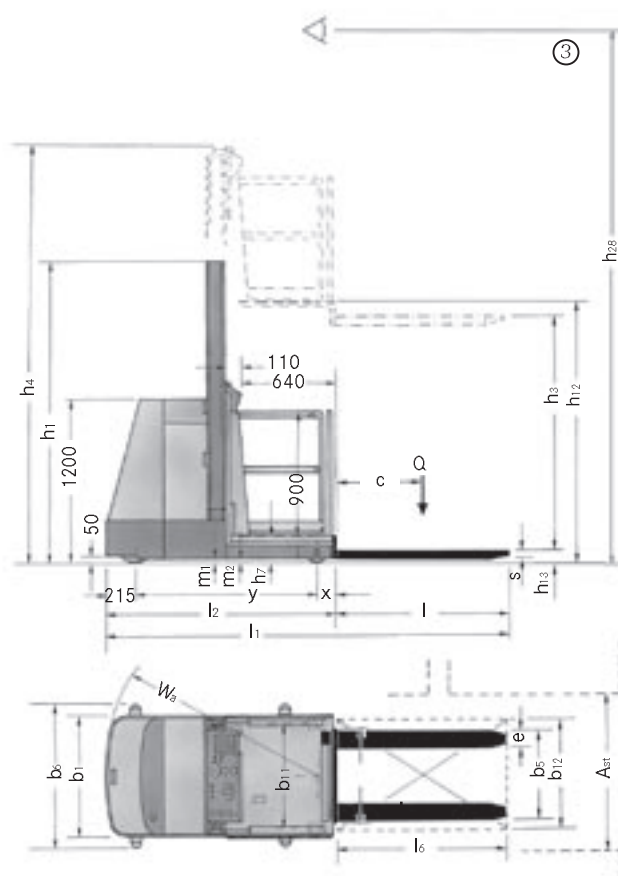
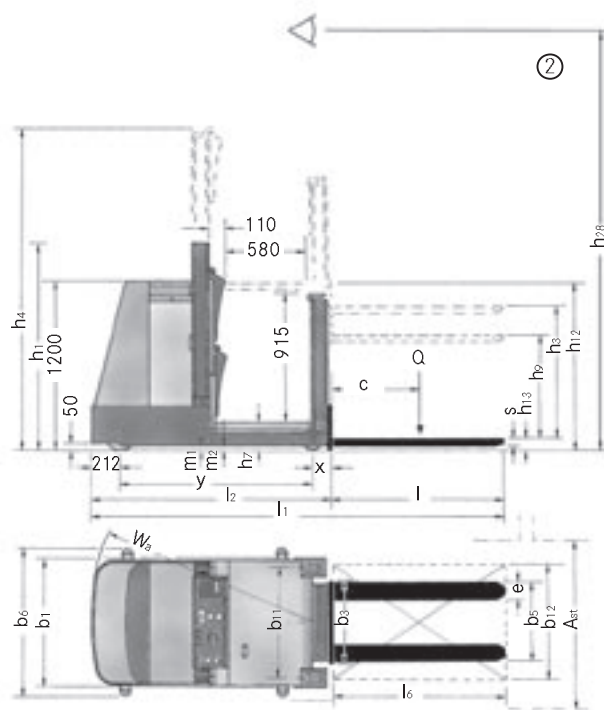
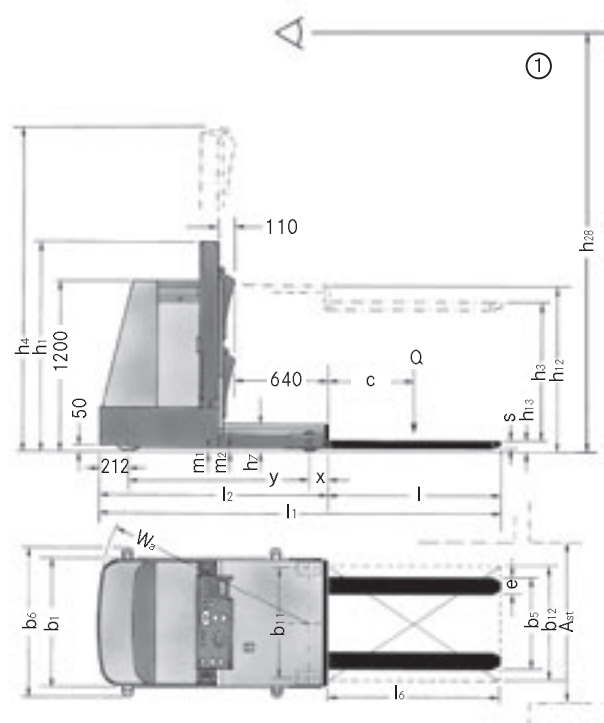
- Integration into the STILL Materialflow Management System using radio data transmission provides paperless instructions to the driver and increases order picking performance and economy.

Safety and Quality.

- The trucks are built to the EC Guideline 98/37/EG and therefore carry the "CE" symbol.
- STILL is certified to ISO 9001.

Additional equipment.

- Low lift with aux. lift.
- High lift with aux. lift.
- High lift without aux. lift.
- Overhead guard.
- Driver's compartment illumination.
- Working spot lights.
- Rear view mirror with bracket.
- 3 way barriers at side.
- Padding for 3 way barriers.
- 3 way barriers at load end.
- Steering wheel with steering knob.
- Mast in two overall heights.
- Hoist cut-out.
- Console with integral storage.
- Writing surface with document clip.
- Preparation for installation of a data terminal, scanner, etc.
- Data terminal with data transfer, printer, scanner etc.
- Interface to STILL Materialflow Management System.
- Various driver's platform and chassis widths.
- Various fork carriages for different pallets.
- Mechanical automatic guidance.
- Contactless aisle recognition.
- FleetManager light, truck access control with card reader.
- Various battery sizes.
- Battery compartment with roller track for side battery changes.
- Cable set for spare battery.
- Pedestrian operation for order picking from the ground.
- Operation load end or both ends.
- Cold store version.
- Roller guidance with/without aisle recognition for mechanical automatic guidance.
- Automatic braking at end of aisle.
- Padding of the rear wall at the load end right into the knee area.
- Drive wheel electrically conductive.
- Other options possible 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.

						STILL ①	STILL ②	STILL ③	STILL ④
Characteristics	1.1	Manufacturer							
	1.2	Manufacturer's model designation				EK 10 Single lift mast, Low lift without aux. lift	EK 10 Single lift mast, Low lift with aux. lift	EK 10 Single lift mast, Low lift without aux. lift	EK 10 Single lift mast, Low lift with aux. lift
	1.3	Power supply				electric	electric	electric	electric
	1.4	Type of control				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
	2.1	Weight (inc. battery)		kg		1475	1575	1810	1910
Weight	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
	3.1	tyres				Vulkollan	Vulkollan	Vulkollan	Vulkollan
Wheels tyres	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	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 ₅	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 _{6t}	mm		1380	1380	1380	1380
	4.34	Working aisle width, with 1200 x 800 lengthwise (l ₆ x b ₁₂)	A _{6t}	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 K ₅		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.

- Ergonomic driver's cab, ideal for order picking, with shock absorbent mountings and elegant overhead guard. Non-slip shock absorbent floor with rubber mat and integral dead-man switch.
- Multifunctional operating panel, for use at alternate ends, with display panel for functional status, service information, operating hours, height display, special functions; operator guidance and display of battery state and status of the guidance system. EMERGENCY OFF button, response button and key switch are integrated into the control panel.
- Grip- and posture-tolerant operation, for all main functions (including horn), individually and simultaneously. Changing the grip is unnecessary, even in the free ranging state (without automatic guidance).

Steering.

Electrical energy saving steering with a defined central position for fatigue-free work. The steering lock is displayed on the display panel. The steering wheel is integrated in the operating panel.

Masts.

- Single lift, Telescopic and Triplex clear view masts.
- Compact mast construction provides stability and torsional stiffness for safe and secure operation, even at high lifts.
- Excellent visibility through and past the mast for the highest safety when driving. Thanks to the inclined rear hood the visibility onto the roadway is considerably improved even for shorter drivers.
- Integral electrical and hydraulic end of stroke damping reduces shocks.

Chassis.

Torsionally rigid steel construction with large load rollers. Drive unit compartment covered with an easily removed steel hood. Plastic battery cover can be stepped on, also usable for storage.

Drive unit.

- The basis for a powerful and economical drive concept is the wear-free and maintenance-free 3-phase drive unit for sensitive driving independent of the load.
- Highly economical due to the lack of braking and direction contactors.
- Monitoring of the drive states for effective preventive maintenance.
- Great driving comfort due to smooth starting and stepless acceleration at high torque and very good efficiency right up to maximum speed.
- The efficient 3-phase drive unit in conjunction with a spur bevel gear transmission offers an optimum relationship of smooth running, high load-bearing and long-life.

Hydraulics.

- The tried and tested proportional valve technology together with modern efficient 3-phase drive technology is a guarantee

of particularly sensitive movements at maximum power and effectiveness.

- Energy saving due to demand-controlled oil flow, reduced hoist motor speeds and automatic pump shut-off.
- Lowering and end position damping for gentle lowering into the end position.
- Ramps and performance parameters can be optimally set to the order picking procedure.

Brakes.

- Wear free generator service brake.
- High energy recovery in generator mode.
- Spring-loaded brake used only for parking and securing, so hardly any wear.
- Differently adjustable braking parameters for deadman or plugging operation offer high driving comfort.

OPTISPEED control concept.

- The controller architecture, which is made up of a few components, is logically laid out and offers great reliability and a high safety standard. At its heart is the modular construction truck controller which together with the CAN bus and the integral height measurement system provides optimal functional processes.
- No relay or contactor equipment in the peripherals due to the central processing of the input/output signals and the internal CAN bus.
 - Reliable processing of the end positions with pre-stored ramp functions for more efficient work.
 - Energy recovery for longer usage period, higher turnaround of pallets and lower energy costs.
 - Adjustments optimised to the application are easily possible for maximum turnaround of goods.
 - Different speeds can be set for forward or reverse travel.
 - Simultaneous movements such as driving and lifting are also provided outside the aisle at maximum permissible speeds.
 - Diagnostics and service interface offers a simple process when configuring and setting parameters through the service laptop.
 - Low spares holding costs due to fewer and uniform controller components.

Battery.

- For multi-shift use, battery changes are possible from both sides using a forklift truck or with a roller track.
- Battery interlock easily accessible from above. With the battery interlock open the battery cover cannot be closed, so there is greater safety when changing batteries.

Automatic guidance.

- The driver can concentrate fully on his work because within the racking the mechanical or contactless automatic guidance takes over the job of steering.

- With mechanically guided trucks the straight-ahead position of the drive wheel is ensured automatically.

Auxiliary lift.

- When order picking, the pallet is brought to the most favourable depositing height.
- Thanks to matched hoist carriage and fork carriage, the wasted space is minimised. This allows optimal depositing even at the edge of the pallet.
- The auxiliary lift integrated into the back wall of the cab provides generous room for movement on the racking sides for optimal access into the shelves and onto the edges of the pallets.
- Integral, load-end control of the auxiliary lift for optimal operation when order picking without having to turn round.
- Forks permanently welded to the hoist carriage.

Safety, Design and Ergonomics.

- Safety package conforming to CE.
- All drive functions are secured through the deadman foot switch.
- All drive and hoist movements are secured through the deadman foot switch and the integral two-handed operation.
- Rounded, soft shapes, plus smooth and padded surfaces, with many integral storage facilities.
- Abseil equipment integrated in the overhead guard, accessible quickly and easily without tools.
- Lowering valve under the rear hood, also easily accessible from the aisle.

Service and maintenance.

- Service Tool Box allows easy configuration, parameter setting and diagnosis.
- Long-term memory for malfunctions and display for error code.
- Central service and diagnostic interface for connection of the STILL Service laptop.
- Drive compartment and rear hood also designed for easy access from the aisle.
- Battery cover can be stepped on for maintenance purposes.

Automation components.

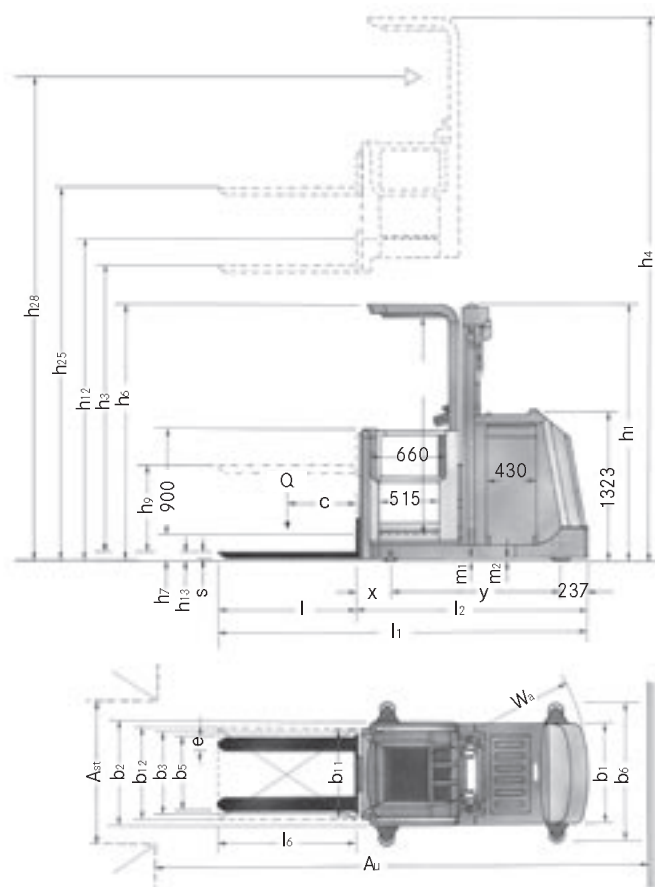
- The vertical order picker can be adapted to special working conditions:
- Integration into the STILL Materialflow Management System using radio data transmission provides paperless instructions to the driver and increases order picking performance and economy.

Safety and Quality.

- The trucks are built to the EC Guideline 98/37/EG and therefore carry the "CE" symbol.
- STILL is certified to ISO 9001.

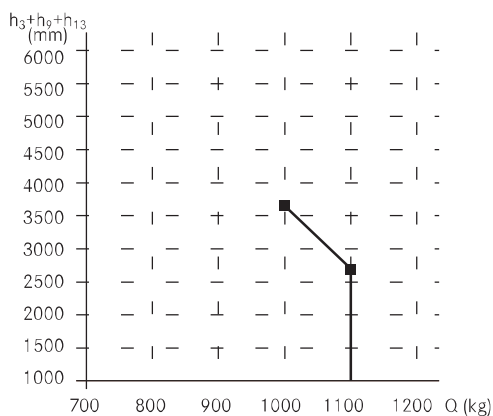
Additional equipment.

- Automatic braking at end of aisle, various designs.
- Hoist cut-outs.
- Various drive cut-outs.
- Cut-out strip on the overhead guard.
- Guidance, mechanical or inductive.
- Contactless aisle recognition for mechanical or inductive automatic guidance.
- Operation at load end and/or mast end.
- Illumination into the racking or into the driver's cab, adjustable.
- Illumination onto the pallet, adjustable.
- Fan in overhead guard.
- Stepless height adjustment of the mast end control panel.
- Mobile personal protection equipment.
- Preparation for installation of a data terminal, scanner etc.
- Data terminal with data transfer, printer, scanner and interface to the STILL Materialflow Management System.
- Auxiliary fork lift.
- Various overall heights for single lift, telescopic and triplex masts.
- Mast bracing.
- Rear view mirror.
- Various chassis widths.
- Fork carriage for adjustable forks.
- Various fork carriages for different pallets.
- Various cab widths.
- Various overhead guard heights.
- Writing surface with document clip.
- Macrolon cover for overhead guard.
- Rail for battery compartment lid.
- Battery roller track for side battery changes.
- Various battery trays.
- Cable set for spare battery.
- Socket for connecting external equipment.
- Power supply on overhead guard for radio, cassette deck etc.
- Walk-on pallet.
- 3rd safety barrier at load end.
- Padding for safety way barriers.
- Cover over the guard rail with storage trays and replaceable back cushion.
- Anti-static guide rollers.
- Cold store version.
- Other options possible on request.



Load diagram.

Single lift - mast, Load centre $c = 400$ mm

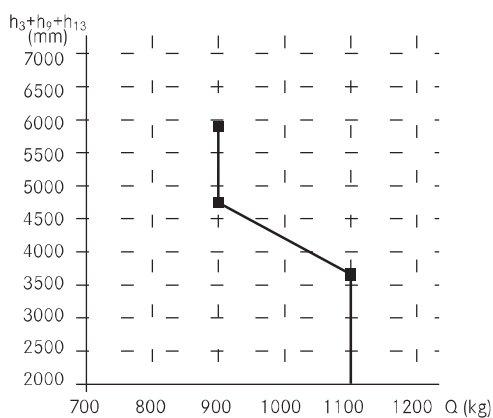


Single-mast.

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

Load diagram.

Telescopic - mast, Load centre $c = 400$ mm



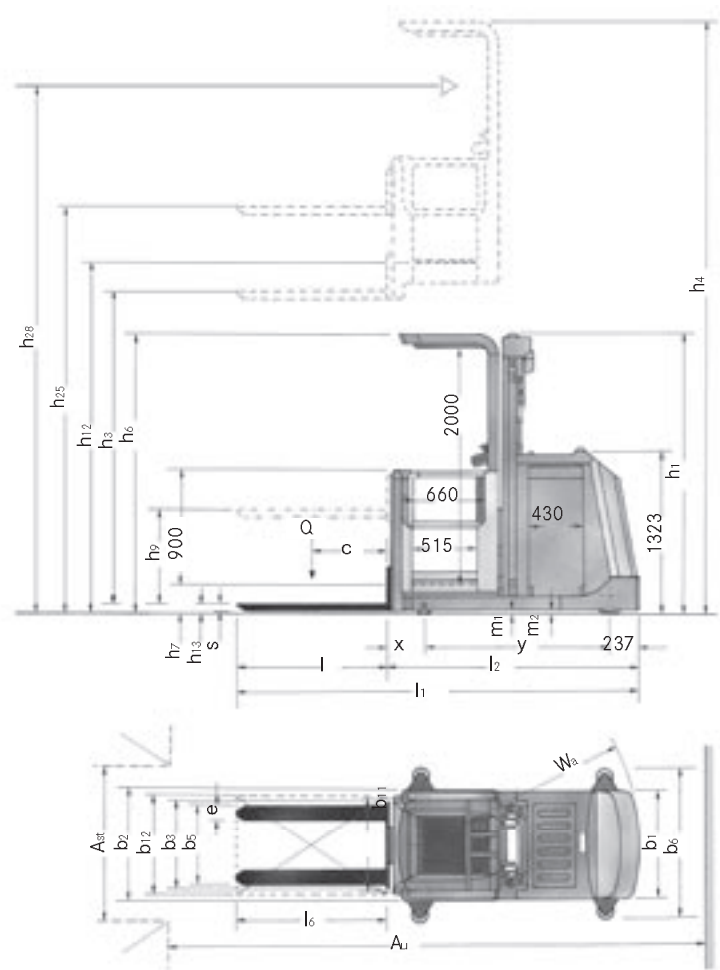
Telescopic-mast.

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
3,400	5,930	5,865	5,125	740	5,365	6,965	7,465
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.

Characteristics	1.1	Manufacturer			STILL	STILL
	1.2	Manufacturer's model designation			EK 111 Single-mast	EK 111 Telescopic-mast
	1.3	Power supply			electric	electric
	1.4	Type of control			stand-on	stand-on
	1.5	Capacity/load	Q	kg	1100	1100
	1.6	Load centre	c	mm	400/600	400/600
	1.8	Load distance	x	mm	298	343
	1.9	Wheelbase	y	mm	1447	1447
	Weight	2.1	Weight (inc. battery)		kg	2600
2.2		Axle loadings laden	drive end/load end	kg	845/2855	680/3120
2.3		Axle loadings unladen	drive end/load end	kg	1415/1185	1360/1340
Wheels tyres	3.1	Tyres			Vulkollan	Vulkollan
	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	700	700
	Dimensions	4.2	Closed mast height	h ₁	mm	2250
4.4		Lift height	h ₈	mm	1700	2825
4.5		Height, mast raised	h ₄	mm	4040	5165
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	1940	3065
4.14.1		Picking height (h ₁₂ + 1600 mm)	h ₂₈	mm	3540	4665
4.15		Height lowered	h ₁₃	mm	65	65
4.19		Overall length	l ₁	mm	3180	3227
4.20		Length to front face of forks	l ₂	mm	1982	2027
4.21		Overall width of chassis	b ₁ /b ₂	mm	880/880	880/880
4.22		Fork dimensions	s/e/l	mm	60/120/1200	60/120/1200
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	560	560
4.27		Width over guide rollers	b ₆	mm	920	920
4.31		Floor clearance under mast, laden ²⁾	m ₁		30	30
4.32		Floor clearance, centre of wheelbase ²⁾	m ₂	mm	50	50
4.34		Working aisle width, with 800 x 1200 lengthwise (l _k x b ₁₂)	A _{st}	mm	1080	1080
4.35	Outer turning radius	W _a	mm	1685	1685	
4.42	Transfer aisle width with 800 x 1200 lengthwise (l _k x b ₁₂)	A _u	mm	3435	3480	
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	0.36/0.39	0.36/0.39
	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	4.6	4.6
	6.2	Hoist motor, rating S3 = 15%		kW	11.5	11.5
	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) 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

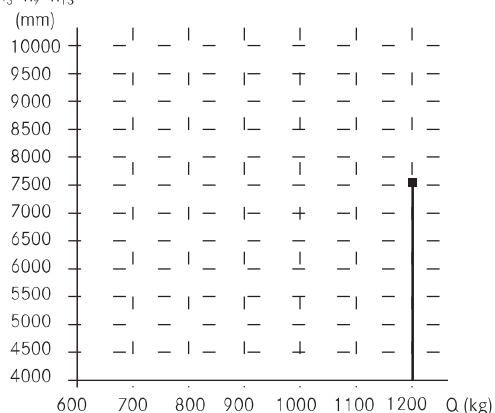
In accordance with VDI guidelines 2198, this specification applies to the standard model. Alternative tyres, mast types, ancilliary equipment, etc. could result in different values.

Characteristics	1.1	Manufacturer				STILL	STILL
	1.2	Manufacturer's model designation				EK 12 Telescopic-mast	EK 12 Triplex-mast
	1.3	Power supply				electric	electric
	1.4	Type of control				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				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		1000	1000
	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		1180/1180	1180/1180
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 crosswise (l ₅ x b ₁₂)	A _{st}	mm		1380	1380	
4.35	Outer turning radius	W _a	mm		1795	1795	
4.42	Transfer aisle width with 800 x 1200 crosswise (l ₅ 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		0.36/0.39	0.36/0.37
	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		4.6	4.6
	6.2	Hoist motor, rating S3 = 15%		kW		11.5	11.5
	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) Sensors, antennae min. 10 mm

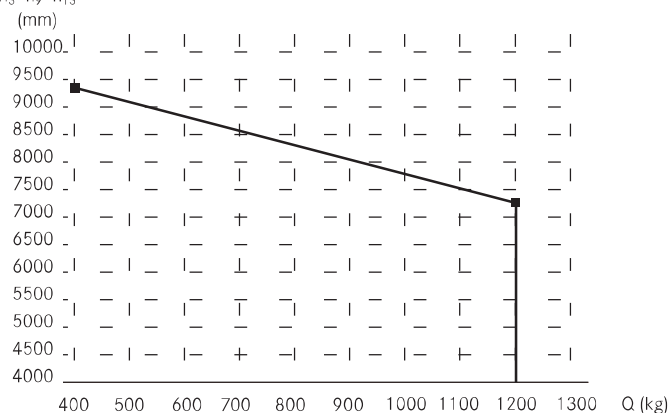
Load diagram.

Telescopic mast, Load centre $c = 400 \text{ mm}$

$$h_3 + h_9 + h_{13}$$


Load diagram.

Triplex mast, Load centre $c = 400$ mm

$$h_3 + h_9 + h_{13}$$


EK 10-LS.

EK 10 with load-end operating panel.

This variant of the EK 10 low lift vertical order picker offers a load-end operating panel as a specific equipment feature and thus a perfect clear view onto the load and in the driving direction. The generously dimensioned stand-on and working area and also the ergonomically-shaped operating panel permit optimal order picking. The integral grab handle and the provision for leaning provide secure support when travelling and shunting in the tightest of spaces. Now with the mast-end drive direction the order picker can approach pallets safely and precisely and serve interfaces such as chain conveyors, roller tracks, transfer stations and block stores. The load-end direction also offers benefits when the proportion of pallet turnaround is high or where pallets are moved into and out of stock.

EK 10-BS.

Equipped for all circumstances.

EK 10 with a second operating panel at the load end and pedestrian control equipment.

This variant of the model EK 10 high lift vertical order picker offers an additional second operating panel fitted at the load end of the driver's platform as a specific equipment feature. The generously dimensioned stand-on and working area and also the ergonomically shaped operating panel permit optimal order picking. The integral grab handle and the provision for leaning provide secure support when travelling and shunting in the tightest of spaces. Selection of the required operating panel - mast end or load end - is through deadman switches which are located in the foot space of the stand-on platform. Due to the arrangement of the deadman switches the appropriate operating panel is activated automatically by operating these with the foot, depending on the desired direction of travel or respectively on operation at the load or mast end. For safety reasons only one operating panel at a time is active. Now with the mast-end drive direction the order picker can carry out normal order picking work and with load-end drive direction can approach pallets safely and precisely and serve interfaces such as chain conveyors, roller tracks, transfer stations and block stores.

The load-end direction also offers benefits when the proportion of pallet turnaround is high or where pallets are moved into and out of stock with this truck. Overall the two operating panels give a high level of flexibility and help to avoid frequent changes of driver. In addition the vertical order picker can be fitted with equipment for pedestrian operation. Where the aisles are sufficiently wide the operative can steer whilst walking alongside the truck. Travel movement only takes place whilst the drive button is pressed. In pedestrian operation the steering is monitored for a straight-ahead position. Driving is only possible when the steering knob or steering wheel is in the central position (straight-ahead position of the drive wheel). The travel speed here is 2.5 km/h as standard but can be changed if desired. When operating from the driver's platform the external drive buttons are interlocked.

EK 11 I/12 I-BP.

EK vertical order picker for protective cage with walk-on pallet.

Depending on the goods being picked, the pallet is also used as movement space when order picking with a vertical order picker. This requires a specially-designed driver's cab with additional barriers, with or without auxiliary lift. In the former case the auxiliary lift is guided by two cylinders. These however cannot be used with the protective cage incorporated. The pallet being walked on is clamped and where auxiliary lift is fitted it is disabled during this period. Walking on the pallet makes a protective cage mandatory from a platform height ($h_{1,2}$) of 1200 mm.



