



EK Technical Data.

Vertical order picker



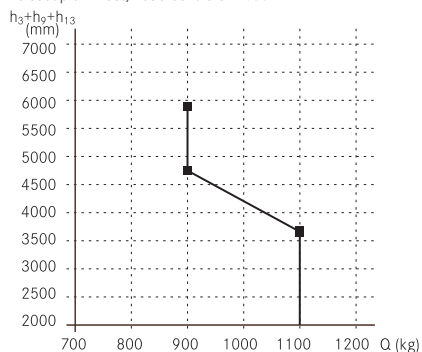
In accordance with VDI guidelines 2198, this specification applies to the standard model.
Alternative tyres, mast types, ancillary equipment, etc. could result in different values.

			STILL	STILL	STILL	
			EK 11 I Telescopic-mast	EK 12 I Telescopic-mast	EK 12 I Triplex-mast	
Characteristics	1.1	Manufacturer				
	1.2	Manufacturer,s model designation				
	1.3	Power supply		electric	electric	
	1.4	Type of control		stand-on	stand-on	
	1.5	Capacity/load	Q kg	1100	1200	1200
	1.6	Load centre	c mm	400/600	400/600	400/600
	1.8	Load distance	x mm	343	343	388
	1.9	Wheelbase	y mm	1447	1557	1557
	Weights	2.1	Weight (inc. Battery)	kg	2700	2950
2.2		Axle loadings laden	drive end/load end kg	680/3120	780/3370	880/3470
2.3		Axle loadings unladen	drive end/load end kg	1360/1340	1520/1430	1690/1540
Wheels, chassis	3.1	Tyres		Vulkollan	Polyurethan	Polyurethan
	3.2	Tyre size	drive end mm	ø 310 x 125	ø 310 x 125	ø 310 x 125
	3.3	Tyre size	load end mm	ø 170 x 152	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	1 x/2
	3.6	Track width	Drive end b ₁₀ mm	-	-	-
	3.7	Track width	Load end b ₁₁ mm	700	1000	1000
	Dimensions	4.2	Closed mast height	h ₁ mm	2250	2250
4.3		Free Lift	h ₂ mm	-	-	-
4.4		Lift height	h ₃ mm	2825	2825	4390
4.5		Height, mast raised	h ₄ mm	5165	5165	6730
4.7		Height to top of overhead guard (cabin)	h ₆ mm	2340	2340	2340
4.8		Platform height	h ₇ mm	240	240	240
4.11		Auxiliary lift	h ₉ mm	740	740	740
4.14		Height, platform raised	h ₁₂ mm	3065	3065	4630
4.14.1		Picking height (h ₁₂ + 1600 mm)	h ₂₈ mm	4665	4665	6230
4.15		Height lowered	h ₁₃ mm	65	65	65
4.19		Overall length	l ₁ mm	3227	2937	2982
4.20		Length to front face of forks	l ₂ mm	2027	2137	2182
4.21		Overall width of chassis	b ₁ /b ₂ mm	880/880	1180/1180	1180/1180
4.22		Fork dimensions	s/e/l mm	60/120/1200	60/120/800	60/120/800
4.23		Fork carriage DIN 15173, class/form A, B		welded forks	welded forks	welded forks
4.24		Fork carriage width	b ₃ mm	660	660	660
4.25		Overall fork width	b ₅ mm	560	640	640
4.27		Width over guide rollers	b ₆ mm	920	1220	1220
4.31		Floor clearance under mast, laden ¹⁾	m ₁ mm	30	30	30
4.32	Floor clearance, centre of wheelbase ¹⁾	m ₂ mm	50	50	50	
4.33	Working aisle width with 800 x 1200 lengthwise (l ₆ x b ₁₂)	A _{st} mm	1080	1380	1380	
4.35	Outer turning radius	W _a mm	1685	1795	1795	
4.42	Transfer aisle width with 800 x 1200 lengthwise (l ₆ x b ₁₂)	A _w mm	3480	3290	3330	
Performance	5.1	Speed	laden/unladen km/h	11,0/11,0	11,0/11,0	11,0/11,0
	5.2	Lifting speed	laden/unladen m/s	0,36/0,39	0,36/0,39	0,36/0,37
	5.3	Lowering speed	laden/unladen m/s	0,35/0,35	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	7,0/7,0
	5.10	Brakes		generator	generator	generator
Electric motors	6.1	Drive motor, rating S2 = 60 min.	kW	4,6	4,6	4,6
	6.2	Hoist motor, rating S3 = 15%	kW	11,5	11,5	11,5
	6.3	Battery to IEC 254-2; A, B, C, no		IEC 254-2; A	IEC 254-2; A	IEC 254-2; A
	6.4	Battery voltage, capacity K _s	V/Ah	48 V/420 Ah	48 V/560 Ah	48 V/560 Ah
	6.5	Battery weight ± 5% (dependent on manufacturer)	kg	720	720	720
Other	8.1	Drive control		MOSFET	MOSFET	MOSFET
	8.4	Noise peak at operator's ears	dB(A)	< 68	< 68	< 68

¹⁾ Sensors, antennas min. 10 mm

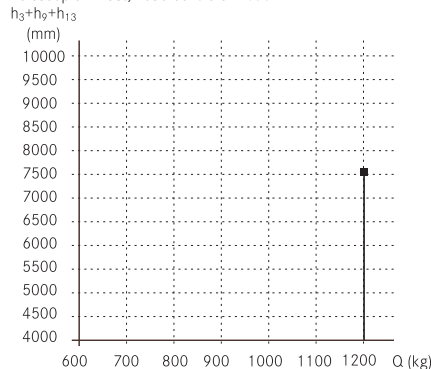
Load diagram EK 11 I.

Telescopic - mast, Load centre c = 400 mm



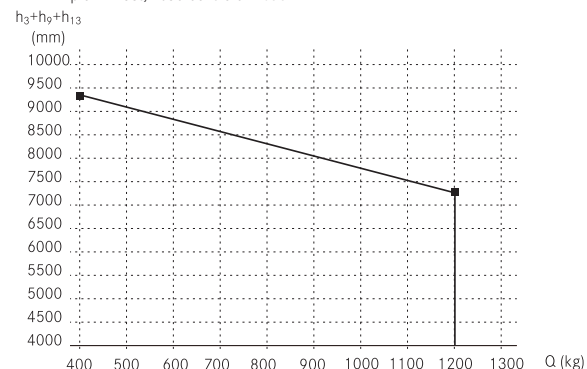
Load diagram EK 12 I.

Telescopic - mast, Load centre c = 400 mm



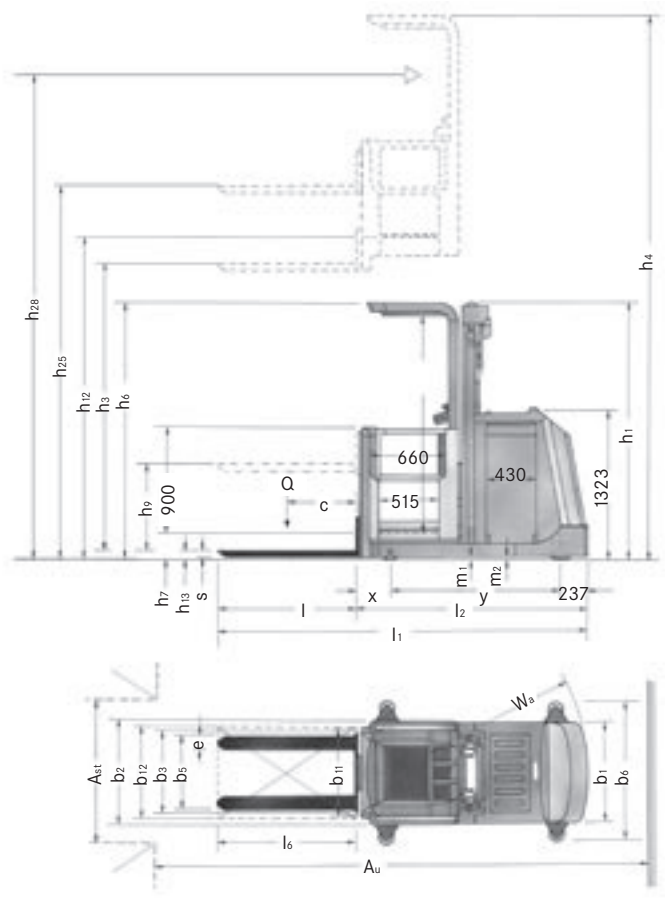
Load diagram EK 12 I.

Triplex - mast, Load centre c = 400 mm



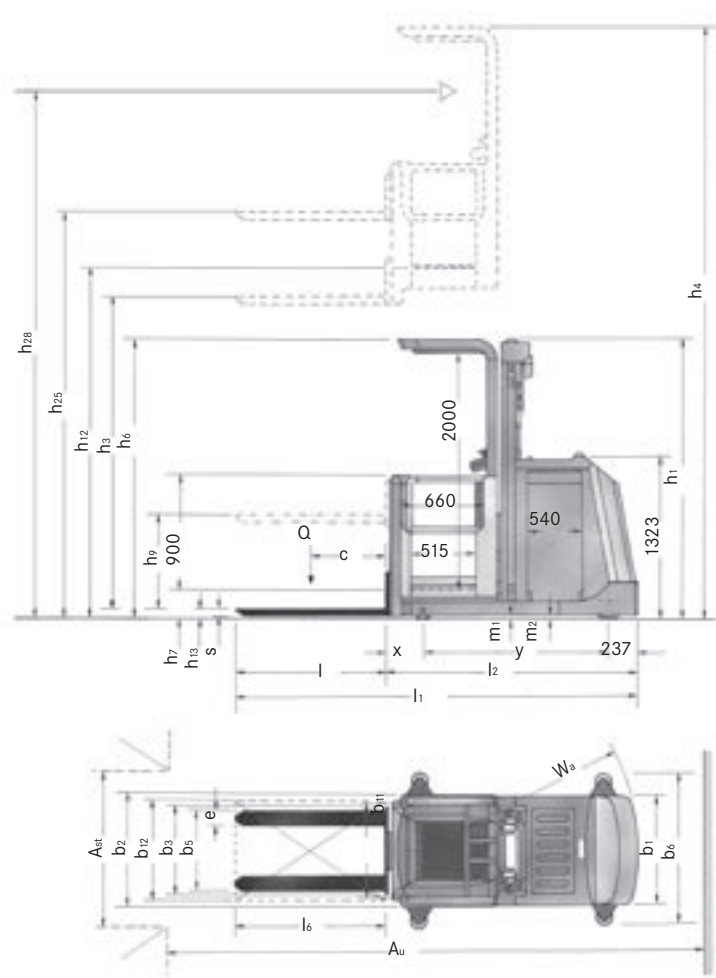
Telescopic-mast EK 11 I.

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
2.450	4.030	3.965	3.225	740	3.465	5.065	5.565
2.250	3.630	3.565	2.825	740	3.065	4.665	5.165



Telescopic-mast EK 12 I.

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
3.900	6.530	6.465	5.725	740	5.965	7.565	8.065
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
2.450	4.030	3.965	3.225	740	3.465	5.065	5.565
2.250	3.630	3.565	2.825	740	3.065	4.665	5.165



Triplex-mast EK 12 I.

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
3.400	7.945	7.880	7.140	1.060	740	7.380	8.980	9.480
2.900	7.145	7.080	6.340	560	740	6.580	8.180	8.680
2.450	5.795	5.730	4.990	110	740	5.230	6.830	7.330
2.250	5.195	5.130	4.390	-	740	4.630	6.230	6.730

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.

- 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 Material flow 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.

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.

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.

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.

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 – with OPTISPEED.

- 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.

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 (h12) of 1200 mm.



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