

48 V 3-phase AC technology giving powerful torque and dynamic movement

Up to two shifts without changing the battery due to energy recovery and effective energy management

Modules for process integration: RFID technology, redundant height and weight measurement, Logistics Interface

Up to 25 percent greater performance due to warehouse navigation with semi-automatic approach (optional)

High flexibility due to modular design and RFID special build solutions from the factory



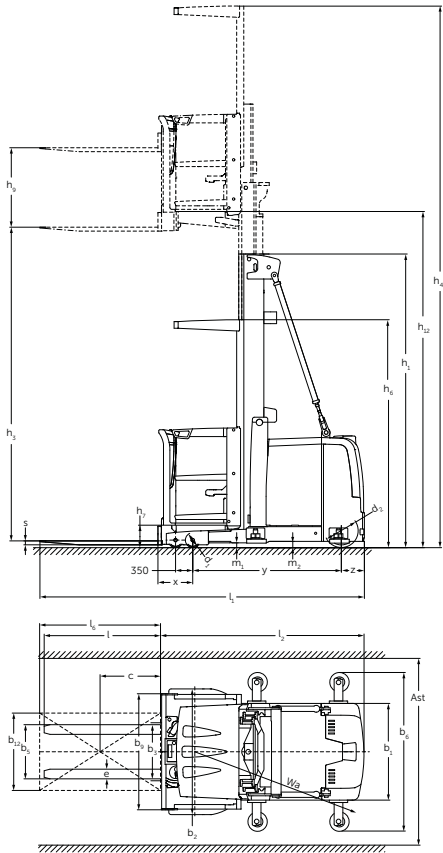
## EKS 210/312

### Vertical order picker (1,000/1,200 kg)

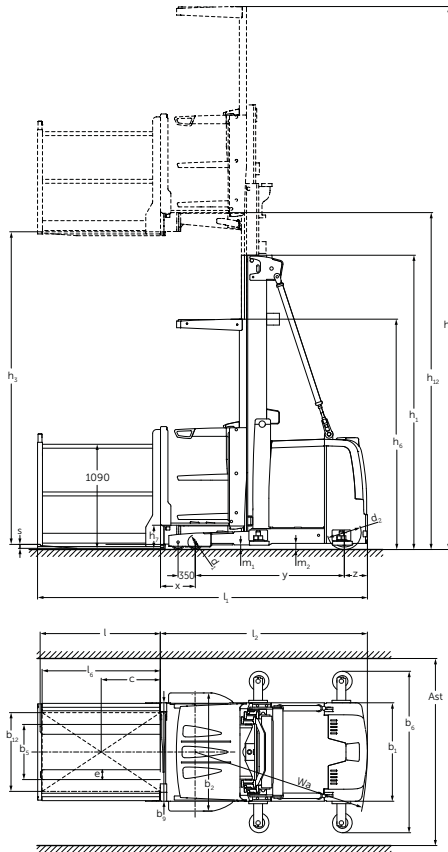
The EKS 210/312 order pickers offer highest picking performance in the high-rack warehouse. Both truck concepts are optimised for their respective application. The EKS 210 with 1000 kg load capacity and order picking heights up to 7845 mm is specially designed for manoeuvrability in wide aisles. Its narrow chassis size of just 900 mm offers the maximum turning capability. The EKS 312 with 1200 kg load capacity and order picking heights up to 11,345 mm offers high throughput performance. Both order pickers set new standards in respect of flexibility, economic efficiency and ergonomics:

- The Jungheinrich modular system offers flexibility and a multitude of options for future customisation. These include modular loadbearing components such as platforms, walkon load sections or auxiliary masts. Further options include an "adaptor system" for flexible choice of cabin widths and electronic height limitations for the masts.
- With the integrated warehouse navigation system (optional), the control computer on the EKS communicates directly with the Warehouse Management System (WMS). The truck can be driven to the destination under semi-automatic control. The operation is comfortable for the operator, movement errors are avoided, productivity and picking quality are significantly improved. The 48 Volt 3-phase technology ensures strong acceleration and high lifting speeds with unrivalled low power consumption. The advantage: full availability over 2 shifts in normal operation without the need to change the battery.
- The EKS operator can easily attain access to this performance. The cabin offers a generously sized workplace with outstanding vision. At the centre of the control concept, is the twopiece console for the operator and the large information display.

# EKS 210/312



EKS Z-Version



EKS L-Version

# Technical data in line with VDI 2198

Identification	1.1	Manufacturer (short form)		Jungheinrich				
	1.2	Model		EKS 210	EKS 210	EKS 312	EKS 312	
				Z	L	Z	L	
Identification	1.3	Drive		Electrics				
	1.4	Manual, pedestrian, stand-on, seated, order picker operation		order picker				
	1.5	Load capacity/rated load	Q t	1	1	1.2 <sup>2)</sup>	1.2 <sup>2)</sup>	
	1.6	Load centre distance	c mm	400				
	1.8	Load distance	x mm	350	350	325	325	
	1.9	Wheelbase	y mm	1325	1325	1515	1515	
Weights	1.10	Centre of drive wheel/counterweight	z mm	210	210	235	235	
	2.1	Service weight	kg	2850	2950	3650	3750	
	2.2	Axle load, w. load, front / rear	kg	3066 / 864	3116 / 914	3574 / 1157	3624 / 1207	
2.3	Axle load, w.o. load, front / rear	kg	1390 / 1460	1440 / 1510	1840 / 1810	1890 / 1860		
Wheels / chassis	3.1	Tyres		Vulkollan				
	3.2	Tyre size, at front	mm	Ø 150 x 95				
	3.3	Tyre size, at rear	mm	Ø 250 x 80	Ø 250 x 80	Ø 343 x 110	Ø 343 x 110	
	3.5	Wheels, number front/rear (x = driven wheels)		2 / 1 x				
	3.6	Track width, front	b <sub>10</sub> mm	775	775	875	875	
	Basic dimensions	4.2	Mast height (lowered)	h <sub>1</sub> mm	2330 <sup>1)</sup>	2330 <sup>1)</sup>	3330 <sup>1)</sup>	3330 <sup>1)</sup>
4.4		Lift	h <sub>3</sub> mm	3000	3000	5000	5000	
4.5		Extended mast height	h <sub>4</sub> mm	5320 <sup>1)</sup>	5320 <sup>1)</sup>	7320 <sup>1)</sup>	7320 <sup>1)</sup>	
4.7		Height of overhead guard	h <sub>6</sub> mm	2320 <sup>1)</sup>				
4.8		Seat height/stand height	h <sub>7</sub> mm	<sup>1)</sup>	<sup>1)</sup>	245 <sup>1)</sup>	245 <sup>1)</sup>	
4.8.1		Standing height	h <sub>7</sub> mm	245	245			
4.11		auxiliary lift	h <sub>9</sub> mm	810		810		
4.14		Standing height raised	h <sub>12</sub> mm	3245 <sup>1)</sup>	3245 <sup>1)</sup>	5245 <sup>1)</sup>	5245 <sup>1)</sup>	
4.16.1		platform length	l <sub>3</sub> mm		1250			
4.19.2		total length (without load)	mm	3085	3135			
4.19.4		Total length including fork length	l <sub>1</sub> mm			3275	3325	
4.20		Length incl. back of forks	l <sub>2</sub> mm	1885	1885	2075	2075	
4.21		Total width	b <sub>1</sub> /b <sub>2</sub> mm	900 / 900	900 / 1000	1000 / 1000	1000 / 1000	
4.22		Fork dimensions	s/e/l mm	40 / 100 / 1200	40 / 100 / 1250	40 / 100 / 1200	40 / 100 / 1250	
4.24		Fork carriage width	b <sub>3</sub> mm	600		600		
4.25		Width over forks	b <sub>5</sub> mm		560			
4.27		width over guide rollers	mm	1100	1200	1200	1200	
4.31		Floor clearance with load under mast	m <sub>1</sub> mm		50			
4.32		Floor clearance centre wheelbase	m <sub>2</sub> mm		60			
4.33.16		Working aisle width for 1200 x 800 pallet	Ast mm	1100	1200	1200	1200	
4.35		Turning radius	W <sub>a</sub> mm	1550	1550	1760	1760	
4.38.1		total lift	mm	3810		5810		
4.38.2		Order picking height	mm	4845	4845	6845	6845	
4.38.4	pallet width	mm		800				
4.38.5	pallet length	mm		1200				
4.38.6	clear width of operator entrance	mm		585				
4.38.7	inner clear height of operator compartment	mm		2050				
4.38.8	outer width of operator compartment	mm	900	1000	1000	1000		
4.38.12	platform length	mm		1250				
4.38.12.1	height of protection device	mm		1090				
4.38.12.2	platform width	mm		1000		800		
Performance data	5.1	Travel speed, w. / w.o. load	km/h	9 / 9	9 / 9	10.5 / 10.5	10.5 / 10.5	
	5.2	Lift speed, w. / w.o. load	m/s	0.29 / 0.31	0.29 / 0.31	0.35 / 0.39	0.35 / 0.39	
	5.3	Lower speed, w. / w.o. load	m/s	0.34 / 0.31	0.34 / 0.31	0.39 / 0.37	0.39 / 0.37	
	5.10	Service brake		reverse current/generated				
	5.11	Parking brake		electric spring-loaded				
Electrics	6.1	Drive motor rating S2 60 min.	kW	3.0	3.0	6.9	6.9	
	6.2	Lift motor rating at S3 25%	kW	9.5				
	6.3	Battery according to DIN 43531/35/36 A,B,C, no		3 PzS 465	3 PzS 465	4 PzS 620	4 PzS 620	
	6.4	Battery voltage/nominal capacity K5	V/Ah	48 / 465	48 / 465	48 / 620	48 / 620	
	6.5	Battery weight	kg	740	740	930	930	
Misc.	8.1	Type of drive control		AC Control				
	8.4	Sound pressure level at operator's ear according to EN 12053	dB (A)	62	62	69	69	
	8.6	Steering		electric				

<sup>1)</sup> +30 mm with mobile personal safety system (PSS)

<sup>2)</sup> 1.0 t where c = 600 mm

In accordance with VDI Guideline 2198 this specification sheet provides details of the standard truck only. Non-standard tyres, different masts, optional equipment, etc. may result in different values.

# EKS 210/312

Standard values for working aisle widths (mm)						
with rail guidance						
Pallet size	Stacking depth	Ast		Ast <sub>t</sub> /VDI theoretical		Ast <sub>p</sub> practical
L design		EKS 210 L	EKS 312 L	EKS 210 L	EKS 312 L	
800 x 1200	800	1600	1600	3139	3328	+500
1200 x 1200	1200	1600	1600	3496	3684	+500
1200 x 800	1200	1200	1200	3426	3612	+500
Z design		EKS 210 Z	EKS 312 Z	EKS 210 Z	EKS 312 Z	
800 x 1200	800	1400	1400	3047	3235	+500
1200 x 1200	1200	1400	1400	3412	3599	+500
1200 x 800	1200	1100	1200	3351	3537	+500
with wire guidance						
Pallet size	Stacking depth	Ast		Ast <sub>t</sub> /VDI theoretical		Ast <sub>p</sub> practical
L design		EKS 210 L	EKS 312 L	EKS 210 L	EKS 312 L	
800 x 1200	800	1650	1650	3139	3328	+ 1000
1200 x 1200	1200	1650	1650	3496	3684	+ 1000
1200 x 800	1200	1250	1250	3426	3612	+ 1000
Z design		EKS 210 Z	EKS 312 Z	EKS 210 Z	EKS 312 Z	
800 x 1200	800	1450	1450	3047	3235	+ 1000
1200 x 1200	1200	1450	1450	3412	3599	+ 1000
1200 x 800	1200	1150	1250	3351	3537	+ 1000

# EKS 210/312

Standard mast types EKS 210/312											
	Lift h <sub>3</sub> (mm)	Lowered mast height <sup>1)</sup> h <sub>1</sub> (mm)		Free lift h <sub>2</sub> (mm)		Extended mast height <sup>1)</sup> h <sub>4</sub> (mm)		Overall height h <sub>3</sub> + h <sub>9</sub> (mm)		Order picking height <sup>1)</sup> h <sub>15</sub> (mm)	
		EKS 210	EKS 312	EKS 210	EKS 312	EKS 210	EKS 312	EKS 210	EKS 312	EKS 210	EKS 312
ZT	3000	2330	-	-	-	5320	-	3810	-	4845	-
	3500	2580	-	-	-	5820	-	4310	-	5345	-
	4250	2960	-	-	-	6570	-	5060	-	6095	-
	5000	-	3330	-	-	-	7320	-	5810	-	6845
	5500	-	3600	-	-	-	7820	-	6310	-	7345
	6500	-	4125	-	-	-	8820	-	7310	-	8345
	7500	-	4650	-	-	-	9820	-	8310	-	9345
	8500	-	5150	-	-	-	10820	-	9310	-	10345
DZ	4750	2330	2330	10	10	7070	7070	5560	5560	6595	6595
	5500	2580	2580	260	260	7820	7820	6310	6310	7345	7345
	6000	2770	2770	450	450	8320	8320	6810	6810	7845	7845
	6500	-	2950	-	630	-	8820	-	7310	-	8345
	7500	-	3330	-	1010	-	9820	-	8310	-	9345
	8300	-	3600	-	1280	-	10620	-	9110	-	10145
	9250	-	4125	-	1805	-	11570	-	10060	-	11095
	9500	-	4125	-	1805	-	11820	-	10310	-	11345

<sup>1)</sup> +30 mm with mobile personal safety system (PSS)

# EKS 210/312



## EKS 210 and EKS 312 standard equipment

- Energy recovery during lowering and braking.
- Active energy and battery management.
- Redundant AC drive control with adjustable drive and hydraulic functions.
- TÜV-certified CAN-Bus system.
- Maintenance-free drives for travel, lifting and steering.
- Wear-free inversion brake.
- Spring-loaded discs as parking brake.
- End position and transfer cushioning of all hydraulic functions.
- Integrated diagnostic system with service interface.
- Travel direction and height dependent diagonal travel speed.
- Jungheinrich Curve Control operator assistance system (steering-angle dependent speed control).
- Stepless speed control of all drives for gentle movement at best efficiency.
- Load wheels in tandem design.
- Ergonomic cab with low entry/exit step and very roomy.
- Modular, height-adjustable controls with integrated compartments.
- Graphics-compatible colour display with soft keys.
- Electronic power-assisted steering for effortless, precise manoeuvring.
- Battery roller conveyor for lateral battery exchange.
- Auxiliary lift for ergonomic order picking.

## EKS 210 and EKS 312 optional equipment

- 24 volt version (EKS 210).
- Stationary or mobile battery changing stations.
- Walk-on pallet with guard.
- Picking platforms in different designs.
- Fork carriage with adjustable and removable forks.
- Mechanical rail guidance in different designs.
- Wire guidance for precise control in the aisle with no mechanical loading of components.
- End of aisle control with speed reduction.
- Access via PIN code (option for individual travel programs).
- Truck positioning in narrow aisles via RFID reader and transponder system.
- Warehouse navigation for semi-automatic approach within the aisle.
- Jungheinrich Logistics Interface (connection to warehouse management).
- Two picking spotlights 'pick by light' with display of the picking direction.
- Integrated Jungheinrich personal protection system (PPS optional), factory-fitted integration into the safety computer.
- Impact protection (mixed operation of two trucks in the aisle).
- Workstation comfort package (LED working lights, LED interior lighting, fan).
- Radio with CD player and MP3 interface.
- Control panel layout: Load side, drive side, both sides.
- Button for pedestrian mode incl. 2° steering.
- Different designs of converter (e.g. power supply terminals, printer etc.).
- Jungheinrich radio data terminals with mechanical and electrical interfaces for material flow management systems.
- Laser scanner including holder on the railing or overhead guard.
- Jungheinrich Information System for Truck management (ISM).

# EKS 210/312





# Benefit from the advantages



## Pioneering 3-phase AC technology

More than 150,000 Jungheinrich 3-phase AC trucks are in use all over the world. This expertise is reflected in our current drive and control technology:

- High order-picking efficiency.
- Low energy consumption.
- Effective thermal economy.
- Reduced maintenance and wear.

## High throughput and order-picking

- 3-phase motors with high torque.
- High acceleration for driving and lifting.
- Quick main and auxiliary masts.

## Modular design

High flexibility through modular design:

- Range of chassis and cabin width options.
- Flexible operating console concept.
- Load-bearing components: auxiliary masts, walk-on pallets or platforms.
- Free ranging.
- Mechanical rail guidance or inductive guidance (both optional).

Future compatibility:

- Adaptor system for customising the cab width to new operating requirements.
- Electronic height limitations for the masts.
- TÜV-certified control system (CAN-Bus) for maximum reliability.

## Economic energy management

- Double energy-saving benefits through regenerative braking and load lowering.
- Workplace lighting using energy-saving LED spotlights.
- Activation of the LED work spotlights upon reaching the destination (optional).

- Longer operating times on a single battery charge (up to 2 shifts).
- Active energy and battery management
- Longer battery lifetime.
- Battery rollers for quick battery exchange.

## RFID floor control (optional)

- Truck control by transponder technology.
- Continuous travel distance measurement for precise recognition of all warehouse areas.
- High flexibility for switching / safety functions (aisle end recognition, lift / drive cut-outs, speed reduction).
- Drive speeds optimised according to the floor topology.

## Jungheinrich warehouse navigation

- Linking the EKS to a Warehouse Management System (WMS) using a radio data terminal and/or scanner.
- Direct loading of the destination within the narrow aisle through the truck computer.
- Automatic vertical positioning under operator control.
- Automatic horizontal positioning under operator control.
- High degree of automation.
- Improved order-picking performance.
- Optimised movements and dual cycling possibilities.
- Elimination of incorrect positioning by RFID location detection.
- High flexibility in the warehouse, as the existing WMS can be modified to cater for warehouse extensions.

## Integral Jungheinrich personnel

- Factory-based integration into the safety computer.
- Configuration, commissioning and maintenance by Jungheinrich.

## Ergonomic benefits and comfort

- Lower cabin platform height – only 245 mm.
- Large headroom.
- Flat surrounding barrier for easy access to the pallet.
- Outstanding field of view over the load and the aisle.
- Height-adjustable operating consoles with integral shelf.
- Configurable membrane keyboard with numeric pad.
- Switchless two-hand operation concept.
- Drive control by thumb movement.
- Travel limit and damping of all hydraulic functions.

## Control system (CAN-Bus)

- All movements can be set and adjusted via parameter.
- Electronically controlled drive wheel braking.

## Commissioning and maintenance

- Quick and reliable commissioning using "teach-in" principles.
- Integral diagnostic system for remote maintenance using a modem.
- 1000 operating hours maintenance interval.
- Electronics with wear-free sensor system.

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The German production facilities in Norderstedt and Moosburg are certified. **ISO 9001**  
**ISO 14001**

Jungheinrich fork lift trucks meet European safety requirements.



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