

**Highly flexible model
with modular construction
and intelligent truck
Management system**

**80V 3-phase AC technology
giving powerful torque
and high productivity**

**Low cost operation through
two-fold energy reclamation and
effective energy management**

**Ergonomic workplace
with electrically adjustable
operators console**



EKV 513–515

Electric order picker/tri-lateral stacker (1250–1500 kg)

The EKV 513/515 high rack stackers stand for high performance in the narrow aisle warehouse. They set new standards with regards to flexibility, low cost operation and ergonomics.

Flexibility through modular construction: this model has over 5 million possible configurations providing flexibility from the start. The advantage is adaptability to any warehousing and logistics operation. An intelligent truck management with our in house electronic controller, and CAN-Bus system keeps the options open for a wide range of

requirements with a large number of additional safety features.

Excellent performance and energy efficiency: the important factors for fast throughput and outstanding cost efficiency. This is precisely what is provided by Jungheinrich's 3-phase AC technology with higher performance and low energy usage. The advantage: full utilisation over two shifts in normal operation without battery change.

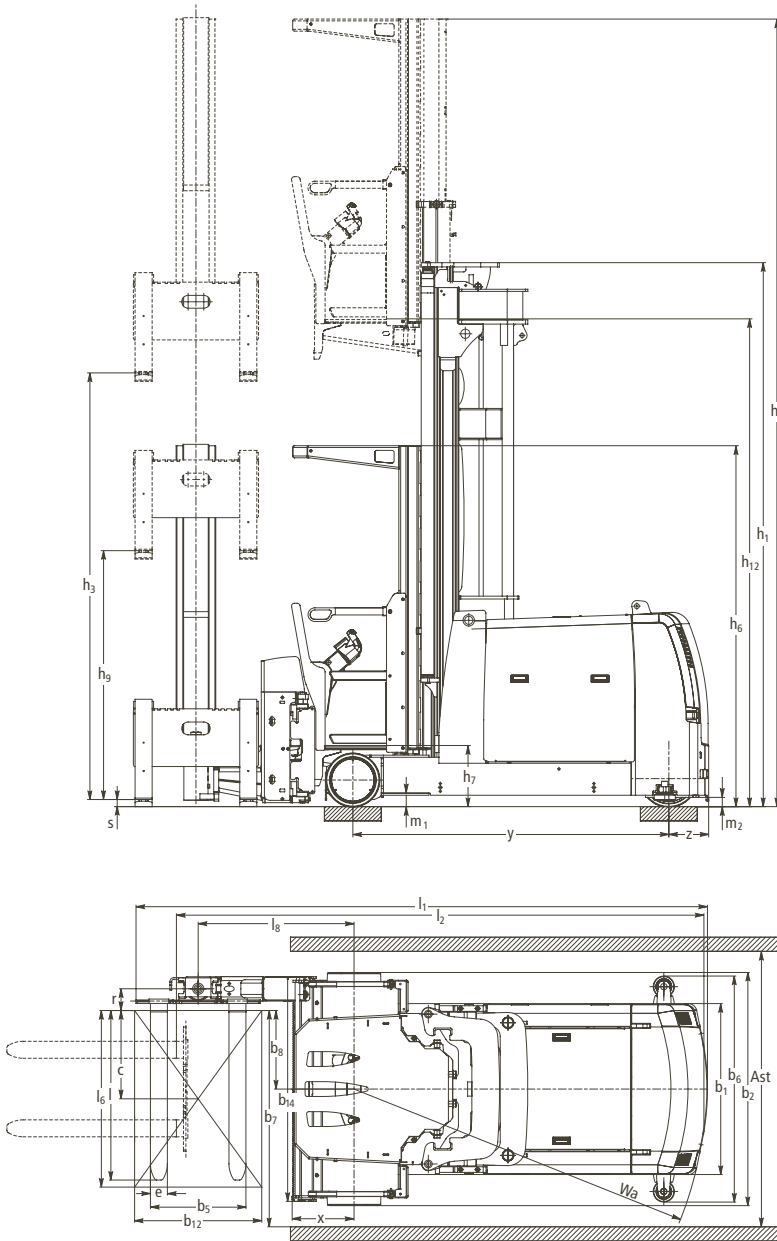
This high efficiency is available to the EKV operator with effortless ease. The cab pro-

vides a generous workplace with excellent visibility. At the centre of the operators cab is the electronically adjustable operators cab:

- Informative colour display. Important operating data is easily and legibly laid out.
- All parameters and programmes can be set individually.
- Softkeys to control functions and menus.
- Travel and hydraulics control via thumb operation.
- Two-handed operation for high safety and operating comfort. Sensors register the operator's touch and pass this information on to the onboard computer.

**JUNGHEINRICH**

EKX 513-515



Standard values for working aisle widths (mm)

with rail guidance

Pallet size	Stacking-in depth	Ast theoretical	Ast ₃ /VDI theoretical EKX 513	Ast ₃ /VDI theoretical EKX 515k	Ast ₂ /VDI theoretical EKX 515	Ast ₃ * practical
1200 x 800	1200	1640	3608	3708	4004	+ 500
1200 x 1200	1200	1640	3967	4067	4363	+ 500
800 x 1200	800	1440	3971	4071	4367	+ 500

* The practical transfer aisle width is a reference value.

with inductive guidance

Pallet size	Stacking-in depth	Ast theoretical	Ast ₃ /VDI theoretical EKX 513	Ast ₃ /VDI theoretical EKX 515k	Ast ₂ /VDI theoretical EKX 515	Ast ₃ * practical
1200 x 800	1200	1720	3834	3934	4230	+ 1000
1200 x 1200	1200	1720	4221	4321	4617	+ 1000
800 x 1200	800	1490	4034	4134	4430	+ 1000

* The practical transfer aisle width is a reference value.

Technical data in line with VDI 2198

			Jungheinrich	Jungheinrich	Jungheinrich		
			EKX 513	EKX 515k	EKX 515		
Identification	1.1	Manufacturer (abbreviation)	Jungheinrich	Jungheinrich	Jungheinrich	1.1	
	1.2	Manufacturer's type designation	EKX 513	EKX 515k	EKX 515	1.2	
	1.3	Drive	Elektro	Elektro	Elektro	1.3	
	1.4	Operator type	Order picker/ Three-lateral stacker	Order picker/ Three-lateral stacker	Order picker/ Three-lateral stacker	1.4	
	1.5	Load capacity/rated load	Q (t)	1.25	1.5	1.5	
	1.6	Load centre distance	c (mm)	600	600	600	1.6
	1.8	Load distance, centre of drive axle to fork	x (mm)	440	440	440	1.8
	1.9	Wheelbase	y (mm)	1826	1926	2222	1.9
	1.10	Centre drive wheel/counterweight	z (mm)	280	280	280	1.10
	Weights	2.1	Service weight incl. battery (see line 6.5)	kg	6350	6750	7900
2.2		Axle loading, laden front/rear	kg	5720/1880	6190/2060	6590/2810	2.2
2.3		Axle loading, unladen front/rear	kg	3850/2500	3980/2770	4480/3420	2.3
Wheels, Chassis	3.1	Tyres	Vulkollan®	Vulkollan®	Vulkollan®	3.1	
	3.2	Tyre size, front	380 x 192	380 x 192	380 x 192	3.2	
	3.3	Tyre size, rear	400 x 160	400 x 160	400 x 160	3.3	
	3.5	Wheels, number front rear (x = driven wheels)	2/1x	2/1x	2/1x	3.5	
	3.6	Tread, front	b ₁₀ (mm)	1228	1328	1328	3.6
	Basic Dimensions	4.2	Closed mast height	h ₁ (mm)	2955	2955	2955
4.4		Lift	h ₃ (mm)	3500	3500	3500	4.4
4.5		Height, mast extended	h ₄ (mm)	6050	6050	6050	4.5
4.7		Height of overhead guard (cabin)	h ₆ (mm)	2550	2550	2550	4.7
4.8		Seat height/stand height	h ₇ (mm)	430	430	430	4.8
4.11		Additional lift	h ₉ (mm)	1780	1780	1780	4.11
4.14		Stand height, elevated	h ₁₂ (mm)	3930	3930	3930	4.14
4.19		Overall length (without load)	l ₁ (mm)	3250	3350	3646	4.19
4.20		Length to face of forks	l ₂ (mm)	3164	3264	3560	4.20
4.21		Overall width	b ₁ /b ₂ (mm)	1210/1400	1210/1500	1210/1500	4.21
4.22		Fork dimensions	s/e/l (mm)	50 x 120 x 1200	50 x 120 x 1200	50 x 120 x 1200	4.22
4.23		Fork carriage ISO 2328, class/type A, B		2/B	2/B	2/B	4.23
4.24		Fork-carriage width	b ₃ (mm)	480	480	480	4.24
4.25		Distance between fork-arms	b ₅ (mm)	465	465	465	4.25
4.27		Width across guide rolls	b ₆ (mm)	1500	1600	1600	4.27
4.29		Reach, lateral	b ₇ (mm)	1300	1300	1300	4.29
4.30		Reach, lateral from vehicle centreline	b ₈ (mm)	480	480	480	4.30
4.31		Ground clearance, laden, below mast	m ₁ (mm)	80	80	80	4.31
4.32		Ground clearance, centre of wheelbase	m ₂ (mm)	80	80	80	4.32
4.33		Aisle width for pallets 1200 x 800 mm	Ast (mm)	1640	1640	1640	4.33
4.35		Turning radius	Wa (mm)	2106	2206	2502	4.35
4.38		Distance to swivelling-fork pivot	l ₈ (mm)	904	904	904	4.38
4.39		Total lift	h ₃ + h ₉ (mm)	5280	5280	5280	4.39
4.40		Order picking height	h ₁₂ + 1600 (mm)	5530	5530	5530	4.40
4.41		Distance swivelling forks pivot point – steering rack	l ₈ – x (mm)	464	464	464	4.41
4.42		Platform width	b ₁₂ (mm)	800	800	800	4.42
4.43		Platform length	l ₆ (mm)	1200	1200	1200	4.43
4.44	Clear width driver compartment entrance	(mm)	420	420	420	4.44	
4.45	Clear driver compartment height inside	(mm)	2100	2100	2100	4.45	
4.46	Driver compartment width outside	b ₉ (mm)	1440	1440	1440	4.46	
4.47	Width swivelling reach frame	b ₁₄ (mm)	1440	1440	1440	4.47	
4.48	Width extension arm	l ₁₀ (mm)	172	172	172	4.48	
4.49	Distance swivelling forks pivot point – fork carriage	r (mm)	154	154	154	4.49	
Performance Data	5.1	Travel speed, laden/unladen (SF)	km/h	10.5/10.5	10.5/10.5 ¹⁾	10.5/10.5 ¹⁾	5.1
	5.2	Lift speed, laden/unladen	m/s	0.42/0.42	0.47/0.47 ²⁾	0.47/0.47 ²⁾	5.2
	5.3	Lowering speed, laden/unladen	m/s	0.45/0.45	0.45/0.45	0.45/0.45	5.3
	5.4	Reaching speed, laden/unladen	m/s	0.25/0.25 ³⁾	0.25/0.25 ³⁾	0.25/0.25 ³⁾	5.4
	5.10	Service brake		reverse current/regenerative	reverse current/regenerative	reverse current/regenerative	5.10
	5.11	Parking brake		electric spring loaded/laminated	electric spring loaded/laminated	electric spring loaded/laminated	5.11
Electric engine	6.1	Drive motor rating S ₂ 60 min.	kW	7.6	7.6	7.6	6.1
	6.2	Lift motor rating at S ₂ 25 %	kW	20	20	20	6.2
	6.3	Battery acc. to DIN 43531/35/36 A, B, C, no		3 EPzS 465	4 EPzS 620	6 EPzS 930	6.3
	6.4	Battery voltage, nominal capacity K _s	V/Ah	80/465	80/620	80/930	6.4
	6.5	Battery weight	kg	1238	1558	2178	6.5
Others	8.1	Type of drive control		AC drive control	AC drive control	AC drive control	8.1
	8.4	Sound level at the driver's ear according to DIN 12 053	dB(A)	68	68	68	8.4
	8.6	Steering		electric	electric	electric	8.6

- 1) possible in connection with performance package to 12 km/h
2) possible in connection with performance package to 0.52 m/s, combined lifting of main and additional lift to 0.7 m/s
3) possible in connection with performance package to 0.4 m/s

Standard mast designs (mm)						EKX 513	EKX 515k	EKX 515
Two-stage mast ZT								
h_3	$h_{total} (h_3+h_9)$	h_{12}	h_{15}	h_1	h_4			
3000	4780	3430	5030	2705	5550	•	•	•
3250	5030	3680	5280	2830	5800	•	•	•
3500	5280	3930	5530	2955	6050	•	•	•
3750	5530	4180	5780	3080	6300	•	•	•
4000	5780	4430	6030	3205	6550	•	•	•
4250	6030	4680	6280	3330	6800	•	•	•
4500	6280	4930	6530	3455	7050	•	•	•
4750	6530	5180	6780	3580	7300	•	•	•
5000	6780	5430	7030	3705	7550	•	•	•
5250	7030	5680	7280	3830	7800	•	•	•
5500	7280	5930	7530	3955	8050	•	•	•
5750	7530	6180	7780	4080	8300	•	•	•
6000	7780	6430	8030	4205	8550	•	•	•
6250	8030	6680	8280	4430	8800	•	•	•
6500	8280	6930	8530	4555	9050	•	•	•
6750	8530	7180	8780	4680	9300	•	•	•
7000	8780	7430	9030	4805	9550	•	•	•
7250	9030	7680	9280	4930	9800	•	•	•
7500	9280	7930	9530	5055	10050	•	•	•
7750	9530	8180	9780	5180	10300		•	•
8000	9780	8430	10030	5305	10550		•	•
8250	10030	8680	10280	5530	10800		•	•
8500	10280	8930	10530	5655	11050		•	•
8750	10530	9180	10780	5780	11300		•	•
9000	10780	9430	11030	5905	11550		•	•
9250	11030	9680	11280	6030	11800		•	•
9500	11280	9930	11530	6155	12050		•	•
9750	11530	10180	11780	6280	12300			•
10000	11780	10430	12030	6405	12550			•

Standard mast designs (mm)						EKX 513	EKX 515k	EKX 515
Three-stage mast DZ								
h_3	$h_{total} (h_3+h_9)$	h_{12}	h_{15}	h_1	h_4			
4000	5780	4430	6030	2550	6550	•	•	•
4250	6030	4680	6280	2625	6800	•	•	•
4500	6280	4930	6530	2710	7050	•	•	•
4750	6530	5180	6780	2795	7300	•	•	•
5000	6780	5430	7030	2895	7550	•	•	•
5250	7030	5680	7280	2995	7800	•	•	•
5500	7280	5930	7530	3095	8050	•	•	•
5750	7530	6180	7780	3195	8300	•	•	•
6000	7780	6430	8030	3295	8550	•	•	•
6250	8030	6680	8280	3395	8800	•	•	•
6500	8280	6930	8530	3495	9050	•	•	•
6750	8530	7180	8780	3595	9300	•	•	•
7000	8780	7430	9030	3695	9550	•	•	•
7250	9030	7680	9280	3795	9800	•	•	•
7500	9280	7930	9530	3895	10050	•	•	•
7750	9530	8180	9780	3995	10300		•	•
8000	9780	8430	10030	4095	10550		•	•
8250	10030	8680	10280	4195	10800		•	•
8500	10280	8930	10530	4295	11050		•	•
8750	10530	9180	10780	4395	11300		•	•
9000	10780	9430	11030	4495	11550		•	•
9250	11030	9680	11280	4595	11800		•	•
9500	11280	9930	11530	4695	12050		•	•
9750	11530	10180	11780	4790	12300			•
10000	11780	10430	12030	4875	12550			•
10250	12030	10680	12280	4980	12800			•
10500	12280	10930	12530	5045	13050			•
10750	12530	11180	12780	5130	13300			•
11000	12780	11430	13030	5215	13550			•
11250	13030	11680	13280	5300	13800			•
11500	13280	11930	13530	5395	14050			•
11750	13530	12180	13780	5480	14550			•
12000	13780	12430	14030	5565	14550			•
12250	14030	12680	14280	5650	14800			•
12500	14280	12930	14530	5750	15050			•

Make use of the advantages



Pioneer of 3-phase AC technology

Over 150,000 Jungheinrich 3-phase AC trucks are in use all over the world. This depth of knowledge is reflected in today's drive and control technology:

- Excellent productivity.
- Low energy consumption.
- Reduced maintenance and wear.



Drive compartment

High productivity

- AC motors with high torque.
- Excellent acceleration and fast cab and supplementary lift speeds.
- Simultaneous lifting/lowering of main and supplementary lift.
- Quiet swivelling reach system with high travel speed.
- Travel direction and height dependent diagonal travel speed profiles.
- Fast working cycles with synchronised swivel (optional).

Performance module (optional) for highest flexibility

- "Lifting" module:
Lift speed 0.52 m/sec and optimisation of swivel reach movement with load recognition (EKX 515).
- "Swivel reach" module:
Maximum dynamics during stacking in with load recognition (EKX 513).
- "Floor quality recognition" module:
Optimisation of travel speed (to 12 km/h) on warehouse floor conditions (in connection with RFID floor control).
- "Capacity" module:
Increased residual capacities with active stabilisers.

Energy management module

- Doubled energy reclamation through regenerative braking and lowering.
- Longer operating times with one battery charge (up to 2 shifts).
- Shorter charging times.
- Active energy/battery management.
- Longer battery life.
- Battery rollers for quick battery change.

Make use of the advantages



Battery cover

RFID floor quality recognition control (optional)

- Truck control with transponder technology.
- Permanent route measuring for exact recognition of all warehouse areas.
- High flexibility regarding switching and safety functions (aisle end stop, lift/travel switch-off, speed reduction).
- Optimisation of travel speed relative to the profile of the floor.

Infinite control of hydraulic motor giving high efficiency

- Low energy loss due to hydraulic tank with heat-resistant plastic container.
- Powerful motors.
- Seamless operation of all functions together.

Integrated Jungheinrich personnel protection system (PPS)

- Optionally available, factory fitted and integrated into the trucks electronic controller/CAN-Bus.
- Projecting, commissioning and maintenance carried out by Jungheinrich.

Ergonomics and comfort

- Generously dimensioned entrance into the cab.
- Large foot well, adjustable knee supports.
- Excellent visibility towards the load with low swivelling sideshift and clear view masts.
- Sprung, adjustable and foldable comfort seat.



Entrance

- Electrically adjustable operating console with colour display.
- Soft key pad (softkey) with number block.
- Individual travel programmes.
- Switchless two-handed operating concept.
- Stop position/transfer cushioning of all hydraulic functions.

Control and CAN-Bus system

- All functions are adjustable.
- Electronically controlled drive wheel brake and non-wearing electromagnetic laminated brake on load wheels.
- Electrically active stabilisers for maximum capacities to high lift heights (optional).

Commissioning and maintenance

- Fast and safe commissioning through teach-in process.

- Integrated diagnostic system for remote maintenance via modem.
- 1000 operating hours service interval.
- Electronics with non-wearing sensor system.
- The gear oil in maintenance-free and sealed for life.
- Revolution counter on wheels with traction control and wear recognition on drive wheel.

Reliable operation – high availability

- Robust and non-wearing 3-phase AC drives without wearing parts.
- 70% fewer cables and plugs due to CAN-Bus.
- Extremely torsion-resistant mast for high residual capacities and low mast sway.

Additional equipment

- Mechanical rail guidance.
- Inductive guidance for precise control in the aisle with no mechanical loading of components.
- Modular telescopic forks in various designs.
- Comfort package "workplace" with workplace lighting, mirror, ventilator.
- Radio with CD player and MP3 interface.
- Synchronised swivelling of forks.
- Mechanical and electric interfaces for material flow management systems.
- Jungheinrich ISM: information system for stacker management.
- Truck prepared for accepting working platforms.
- Modular system for lift and travel stop as well as speed reduction.
- Switches on overhead load guard.



Operating console

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Jungheinrich AG
ISO 9001, ISO 14001
Certification of Quality and
Environment Management.



Jungheinrich trucks
conform to the European
Safety Requirements.



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