

**80 V 3-phase AC technology
for high torques and
dynamic movement sequences**

**Excellent economic efficiency
through two-fold energy reclamation**

**Excellent reliability through
AC drive control and CAN-Bus**

**Optimised operator control
at ergonomic workplace**

**Broad application spectrum
with solution-oriented options**



EZX 513–515

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

The EZX 513 and EZX 515 of the Kombi range with 80 V 3-phase AC technology, 1250–1500 kg capacity and lift heights up to 14250 mm stand for top performance in the "high lift sector" of narrow aisle warehousing. The ability to stack or retrieve whole pallets and pick individual items from the racking increases both flexibility and economic performance. The EZX 515k is also specifically designed for use outside the racking configuration as its compactness provides maximum manoeuvrability.

This high efficiency makes itself available to the EZX operator with effortless ease: The

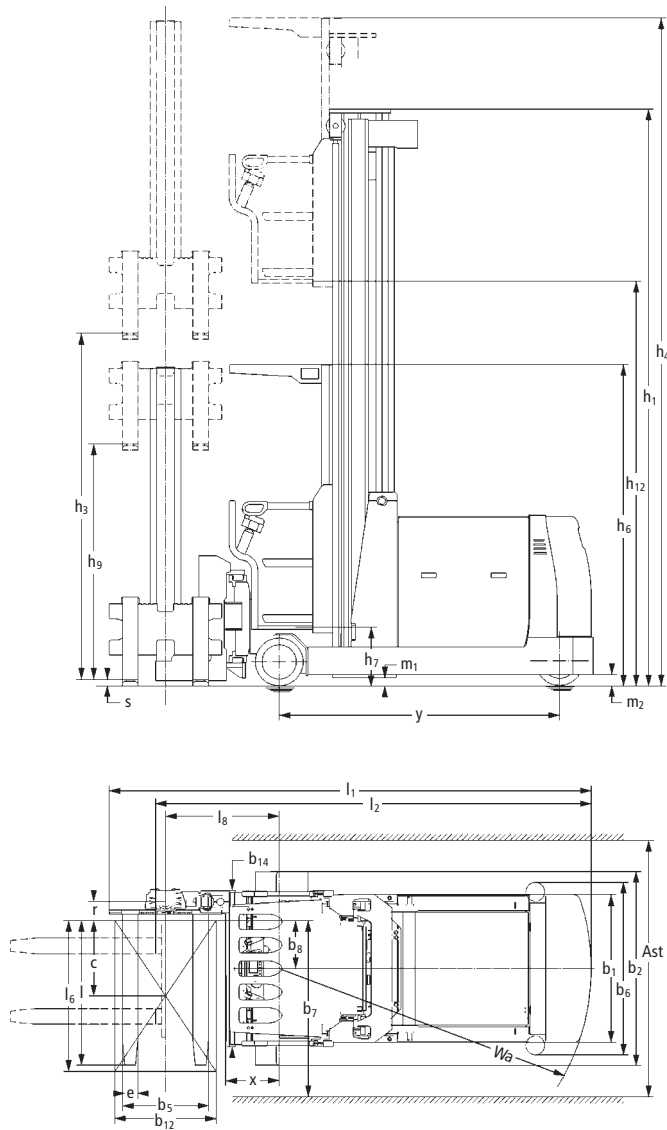
clearly arranged cab provides a generously dimensioned workplace. Large storage areas, clear contours and the choice of standing or sitting operation make work significantly more pleasant and thus faster.

At the centre of the effective operating concept is the operating console, adjustable in both height and rake. With a number of innovative performance characteristics, it defines state of the art system ergonomics:

- Information transmission via graphic display. Important operating data are quickly and legibly depicted in pictograms.

- Individually adjustable steering characteristics and degree of steering lock.
- Travel and hydraulics are controlled via thumb movement.
- Two-handed operating concept for first class safety and operating comfort. Switch-free sensors register the operator's touch and pass this information to the onboard computer where all safety-relevant checks are carried out. The intensity of the required touch is individually adjustable.

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 ₃ /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 ₃ /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

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 (electric, diesel, petrol, fuel gas, mains current, manual)	electric	electric	electric	1.3	
	1.4	Type of operation (hand, pedestrian, standing, seated, order picking)	order picker/tri-lateral stacker	order picker/tri-lateral stacker	order picker/tri-lateral stacker	1.4	
	1.5	Load capacity/rated load	Q (t)	1,25	1,5	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)	410 ¹⁾	410 ¹⁾	410 ¹⁾	1.8
	1.9	Wheelbase	y (mm)	1826	1926	2222	1.9
	Weights	2.1	Service weight	kg	6499	6926	8083
2.2		Axle loading, laden front/rear	kg	5884/1865	5936/2490	6882/2701	2.2
2.3		Axle loading, unladen front/rear	kg	4063/2436	4226/2700	4734/3349	2.3
Wheels, Chassis	3.1	Tyres (solid rubber, superelastic, pneumatic, polyurethane)	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	Track width, front	b ₁₀ (mm)	1258	1308	1308	3.6
	Basic Dimensions	4.2	Lowered mast height	h ₁ (mm)	2955	2955	3705
4.4		Lift height	h ₃ (mm)	3500	3500	5000	4.4
4.5		Extended mast height	h ₄ (mm)	6050	6050	7550	4.5
4.7		Overhead load guard (cab) height	h ₆ (mm)	2550	2550	2550	4.7
4.8		Seat height/standing height	h ₇ (mm)	470	470	470	4.8
4.11		Additional lift	h ₉ (mm)	1750	1750	1750	4.11
4.14		Standing height, elevated	h ₁₂ (mm)	3970	3970	5470	4.14
4.19		Overall length (without load)	l ₁ (mm)	3340	3440	3736	4.19
4.20		Length to face of forks	l ₂ (mm)	3200	3300	3596	4.20
4.21		Overall width	b ₁ /b ₂ (mm)	1210/1450	1210/1500	1210/1500	4.21
4.22		Fork dimensions	s/e/l (mm)	50/120/1200	50/120/1200	50/120/1200	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)	570	570	570	4.24
4.25		Width over forks	b ₅ (mm)	535	535	535	4.25
4.27		Width across guide roller	b ₆ (mm)	1540	1540	1540	4.27
4.29		Reach, lateral	b ₇ (mm)	1297	1297	1297	4.29
4.30		Reach, lateral from vehicle centreline	b ₈ (mm)	480	480	480	4.30
4.31		Ground clearance, laden, under mast	m ₁ (mm)	65	65	65	4.31
4.32		Ground clearance, centre of wheelbase	m ₂ (mm)	85	85	85	4.32
4.33		Aisle width for pallets 1000 x 1200 crossways	Ast (mm)	1640	1640	1640	4.33
4.34		Aisle width for pallets 800 x 1200 mm lengthways	Ast (mm)	1440	1440	1440	4.33
4.35		Turning radius	Wa (mm)	2101	2201	2497	4.35
4.38		Distance to swivelling fork pivot point	l ₈ (mm)	949 ¹⁾	949 ¹⁾	949 ¹⁾	4.38
4.39		Total lift	h ₃ + h ₉ (mm)	5250	5250	6750	4.39
4.40		Order picking height	h ₁₂ + 1600 (mm)	5570	5570	7070	4.40
4.41		Distance swivelling forks pivot point – steering rack	l ₈ – x (mm)	539 ¹⁾	539 ¹⁾	539 ¹⁾	4.41
4.42		Pallet width	b ₁₂ (mm)	800	800	800	4.42
4.43	Pallet length	l ₆ (mm)	1200	1200	1200	4.43	
4.44	Clear width driver compartment entrance	(mm)	435	435	435	4.44	
4.45	Clear driver compartment height inside	(mm)	2050	2050	2050	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)	190	190	190	4.48	
4.49	Distance swivelling forks pivot point – fork carriage	r (mm)	145	145	145	4.49	
Performance Data	5.1	Travel speed, laden/unladen (SF)	km/h	10,5/10,5	10,5/10,5	10,5/10,5	5.1
	5.2	Lift speed, laden/unladen	m/s	0,40/0,45	0,42/0,47	0,42/0,47	5.2
	5.3	Lowering speed, laden/unladen	m/s	0,40/0,40	0,40/0,40	0,40/0,40	5.3
	5.4	Reach speed, laden/unladen	m/s	0,20/0,20	0,20/0,20	0,20/0,20	5.4
	5.10	Service brake		reverse current/regenerative	reverse current/regenerative	reverse current/regenerative	5.10
	5.11	Parking brake		electric spring loaded	electric spring loaded	electric spring loaded	5.11
E-Motor	6.1	Drive motor rating S ₂ 60 min.	kW	7	7	7	6.1
	6.2	Lift motor rating at S ₂ 25 % ¹⁾	kW	21	21	21	6.2
	6.3	Battery acc. to DIN 43531/35/36 A, B, C, no		3 EPzS 420	4 EPzS 560	6 EPzS 840	6.3
	6.4	Battery voltage, nominal capacity K _s	V/Ah	80/420	80/560	80/840	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 driver's ear according to EN 12 053	dB(A)	68	68	68	8.4
	8.6	Steering		electric	electric	electric	8.6

1) ZT mast, performance data measured for 400 ZT

This specification sheet according to VDI regulation 2198 only provides technical values for the standard truck. Non-standard tyres, different masts, additional equipment, etc. could produce other values. Right reserved for technical changes and improvements.

Standard mast designs (mm)						EKX 513	EKX 515k	EKX 515
2-stage mast ZT								
h_3	$h_{tot.} (h_3+h_9)$	h_{12}	Order picking height	h_1	h_4			
3000	4750	3470	5070	2705	5550	•	•	•
3500	5250	3970	5570	2955	6050	•	•	•
3750	5500	4220	5820	3080	6300	•	•	•
4000	5750	4470	6070	3205	6550	•	•	•
4250	6000	4720	6320	3330	6800	•	•	•
4500	6250	4970	6570	3455	7050	•	•	•
4750	6500	5220	6820	3580	7300	•	•	•
5000	6750	5470	7070	3705	7550	•	•	•
5250	7000	5720	7320	3830	7800	•	•	•
5500	7250	5970	7570	3955	8050	•	•	•
5750	7500	6220	7820	4080	8300	•	•	•
6000	7750	6470	8070	4205	8550	•	•	•
6250	8000	6720	8320	4430	8800	•	•	•
6500	8250	6970	8570	4555	9050	•	•	•
6750	8500	7220	8820	4680	9300	•	•	•
7000	8750	7470	9070	4805	9550	•	•	•
7250	9000	7720	9320	4930	9800	•	•	•
7500	9250	7970	9570	5055	10050	•	•	•
7750	9500	8220	9820	5180	10300		•	•
8000	9750	8470	10070	5305	10550		•	•
8250	10000	8720	10320	5530	10800		•	•
8500	10250	8970	10570	5655	11050		•	•
8750	10500	9220	10820	5780	11300		•	•
9000	10750	9470	11070	5905	11550		•	•
9250	11000	9720	11320	6030	11800		•	•
9500	11250	9970	11570	6155	12050		•	•
9750	11500	10220	11820	6280	12300			•
10000	11750	10470	12070	6405	12550			•

Standard mast designs (mm)						EKX 513	EKX 515k	EKX 515
3-stage mast DZ								
h_3	$h_{tot.} (h_3+h_9)$	h_{12}	Order picking height	h_1	h_4			
4250	6000	4720	6320	2595	6800	•	•	•
4500	6250	4970	6570	2695	7050	•	•	•
5000	6750	5470	7070	2895	7550	•	•	•
5250	7000	5720	7320	2995	7800	•	•	•
5500	7250	5970	7570	3095	8050	•	•	•
5750	7500	6220	7820	3195	8300	•	•	•
6000	7750	6470	8070	3295	8550	•	•	•
6250	8000	6720	8320	3395	8800	•	•	•
6500	8250	6970	8570	3495	9050	•	•	•
7000	8750	7470	9070	3695	9550	•	•	•
7500	9250	7970	9570	3895	10050	•	•	•
7750	9500	8220	9820	3950	10300		•	•
8000	9750	8470	10070	4095	10550		•	•
8500	10250	8970	10570	4295	11050		•	•
8750	10500	9220	10820	4395	11300		•	•
9000	10750	9470	11070	4495	11550		•	•
9250	11000	9720	11320	4595	11800		•	•
9500	11250	9970	11570	4695	12050		•	•
10000	11750	10470	12070	4845	12550			•
10250	12000	10720	12320	4945	12800			•
10500	12250	10970	12570	5045	13050			•
10750	12500	11220	12820	5120	13300			•
11000	12750	11470	13070	5195	13550			•
11500	13250	11970	13570	5395	14050			•
12000	13750	12470	14070	5545	14550			•
12250	14000	12720	14320	5645	14800			•
12500	14250	12970	14570	5795	15050			•



Make use of the advantages

80 V 3-phase AC technology

Constant application of 3-phase AC technology for travel, hydraulics and steering drive is a major characteristic for the EKX 513/515. The advantages are obvious:

- Optimum energy consumption through particularly favourable efficiency factor.
- High efficiency factor of hydraulic system through speed control of hydraulic motor.
- Optimised thermal economy allows the use of corrosion-free, heat-resistant plastic containers for hydraulic oil.
- Excellent efficiency factor on all motors.
- Dynamic movement sequences.
- Reduced maintenance through omission of components susceptible to wear.

Economic efficiency

During lowering of load or empty load pick-up device, energy is fed back into the battery = "regenerative lowering". The energy is also fed back into the battery during travel movement braking = "regenerative braking". Moreover, energy reclaimed in this way is available for subsequent energy consumption.

The advantages:

- Longer operating times with the same battery capacity.
- Improved order picking efficiency.
- Shorter battery charging times with prolonged battery life at the same time.
- Lower investments for smaller batteries and lower energy costs.



Operating panel

Reliability

3-phase AC drive control and CAN-Bus make EKX applications as requirement-oriented, economical and reliable as never before.

The advantages:

- Individual adjustment to every application.
- Active safety through steplessly adjustable speed profiles in and out of narrow aisles.
- Care of components.
- Service-friendly through repairable boards and exchangeable interface.

Standard equipment

- Ergonomic operator cab with overhead load guard.
- Sprung, height-adjustable and foldable seat.
- Compact operating panel with graphic display, battery discharge monitor, operating hour meter, key switch, emergency

stop switch, clock, lift height and steering position display.

- Macrolon screen between upper edge of swivelling reach and parapet.
- Spring clip on rear panel.
- Foldable bottle holder.
- Electric power-assisted steering.
- Travel direction dependent diagonal travel speed profiles.
- AC drive control with CAN-Bus connection.
- Wear-free regenerative braking with energy reclamation.
- Spring-loaded brake on drive wheel.
- Hydraulic load wheel brake.
- Stepless speed control of hydraulic aggregate.
- End position and transfer cushioning of all hydraulic functions.
- Simultaneous lowering of main and additional lift.
- Overriding rotation/reach cycle.
- Integrated diagnostic system.
- Removable rear cover for excellent accessibility.
- Foldable battery cover and removable battery side panels.
- Warning flashing light during lowering and travel operation.
- Deadman switch.
- Emergency lowering of main lift under rear cover.
- Slack chain safety device.



Battery cover

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ISO-9001, ISO-14001-
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