

**Versatile design with modular construction and intelligent truck management system**

**80 Volt 3-phase advanced AC technology providing powerful torque and high productivity**

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

**Ergonomic workplace with electrically adjustable operator's console**



## **EKX 513–515**

### **Electric Turret Truck (2750–3300 lbs.)**

The EKX 513–515 high-rack turret trucks stand for high performance in the narrow aisle warehouse. They set new standards with regard to flexibility, low cost of operation and ergonomics.

Versatility through modular construction: these models have over 5 million possible configurations providing design versatility from the start. The advantage is adaptability to any warehousing and logistics operation. Intelligent truck management with our proprietary electronic controller and CAN-Bus system keeps the options open for a wide range of requirements to precisely match the truck to the application.

Excellent performance and energy efficiency: both are important factors for fast throughput and low cost of operation. This is exactly what is provided by Jungheinrich 3-phase AC technology and industry leading controller and motor design. The advantage: full utilization over two shifts in normal operation without a battery change.

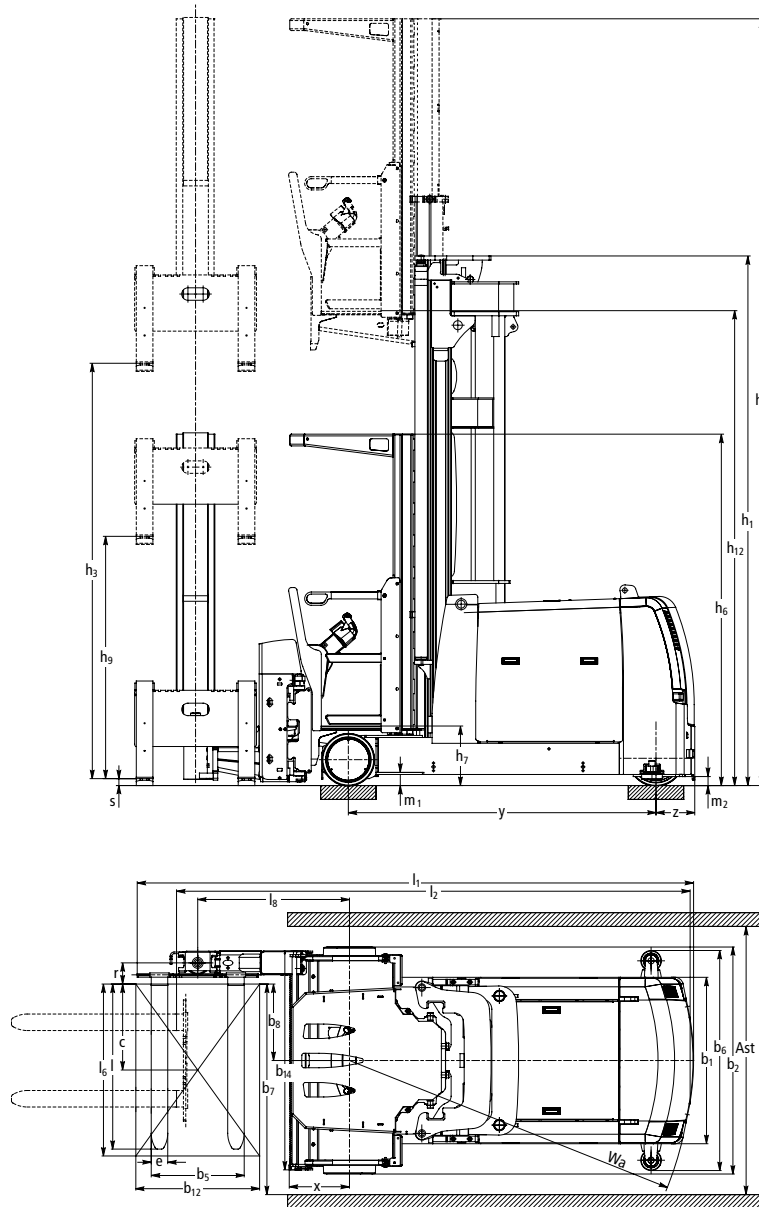
This high performance and efficiency is available to the operator from the moment they step into the operator's cab and turn on the EKC. The cab provides a generous workplace with excellent visibility. At the center of the cab is the electronically adjustable control panel where the truck controls

are located and all the important operating parameters are clearly seen on the high resolution color display.

- All parameters and programs can be set individually.
- Softkeys are used to control functions and menus.
- Travel and hydraulics are controlled via thumb operation.
- Two-handed operation is used for maximum security 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 (inches)						
with rail guidance						
Pallet size (l x w)	Stacking-in depth	Clear aisle width (Ast)	Transfer aisle (Ast <sub>3</sub> ) theoretical <b>EKX 513</b>	Transfer aisle (Ast <sub>3</sub> ) theoretical <b>EKX 515k</b>	Transfer aisle (Ast <sub>3</sub> ) theoretical <b>EKX 515</b>	Transfer aisle (Ast <sub>3</sub> )* practical
48 x 48	48	64.6	156.2	160.1	171.8	+ 19.7
40 x 48	40	56.7	156.3	160.3	171.9	+ 19.7
* The practical transfer aisle width is a reference value.						
with wire guidance						
Pallet size (l x w)	Stacking-in depth	Clear aisle width (Ast)	Transfer aisle (Ast <sub>3</sub> ) theoretical <b>EKX 513</b>	Transfer aisle (Ast <sub>3</sub> ) theoretical <b>EKX 515k</b>	Transfer aisle (Ast <sub>3</sub> ) theoretical <b>EKX 515</b>	Transfer aisle (Ast <sub>3</sub> )* practical
48 x 48	48	67.7	166.2	170.1	181.8	+ 39.4
40 x 48	40	58.7	158.8	162.8	174.4	+ 39.4
* The practical transfer aisle width is a reference value.						
Note: Ast refers to the normal aisle. Ast <sub>3</sub> refers to the transfer aisle.						

# Technical Data

Characteristics	1.1	Manufacturer (abbreviation)	Jungheinrich	Jungheinrich	Jungheinrich	1.1	
	1.2	Manufacturer's type designation	<b>EKX 513</b>	<b>EKX 515k</b>	<b>EKX 515</b>	1.2	
	1.3	Drive	electric	electric	electric	1.3	
	1.4	Type of operation	Order Picker/Turret Truck	Order Picker/Turret Truck	Order Picker/Turret Truck	1.4	
	1.5	Load capacity / rated load	Q (lbs)	2750	3300	3300	1.5
	1.6	Load center distance	c (inches)	24.0	24.0	24.0	1.6
	1.8	Load distance, center of load axle to fork face	x (inches)	17.3	17.3	17.3	1.8
	1.9	Wheelbase	y (inches)	71.9	75.8	87.5	1.9
	1.10	Center drive wheel / counterweight	z (inches)	11.0	11.0	11.0	1.10
	Weights	2.1	Service weight incl. battery (see line 6.5)	lbs	13999	14881	17417
2.2		Axle loading, loaded front/rear	lbs	12610 / 4145	13647 / 4542	14528 / 6195	2.2
2.3		Axle loading, unloaded front/rear	lbs	8488 / 5512	8774 / 6107	9877 / 7540	2.3
Wheels/Chassis	3.1	Tires	Vulkollan®	Vulkollan®	Vulkollan®	3.1	
	3.2	Tire size, front	inches	15.0 x 7.6	15.0 x 7.6	15.0 x 7.6	3.2
	3.3	Tire size, rear	inches	15.7 x 6.3	15.7 x 6.3	15.7 x 6.3	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 <sub>10</sub> (inches)	57.1	57.1	57.1	3.6
	Dimensions	4.2	Collapsed mast height	h <sub>1</sub> (inches)	117	117	117
4.4		Lift height	h <sub>3</sub> (inches)	137	137	137	4.4
4.5		Extended mast height	h <sub>4</sub> (inches)	239	239	239	4.5
4.7		Overhead guard height	h <sub>6</sub> (inches)	100.4	100.4	100.4	4.7
4.8		Seat height / platform height	h <sub>7</sub> (inches)	16.9	16.9	16.9	4.8
4.11		Auxiliary lift	h <sub>9</sub> (inches)	70	70	70	4.11
4.14		Maximum platform height	h <sub>12</sub> (inches)	154	154	154	4.14
4.19		Overall length (without load)	l <sub>1</sub> (inches)	128.0	131.9	143.5	4.19
4.20		Length to fork face (headlength)	l <sub>2</sub> (inches)	124.6	128.5	140.2	4.20
4.21		Overall width	b <sub>1</sub> / b <sub>2</sub> (inches)	47.6 / 57.9	47.6 / 57.9	47.6 / 57.9	4.21
4.22		Fork dimensions	s / e / l (inches)	2.0 x 4.7 x 47.2	2.0 x 4.7 x 47.2	2.0 x 4.7 x 47.2	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 <sub>3</sub> (inches)	18.9	18.9	18.9	4.24
4.25		Overall fork width	b <sub>5</sub> (inches)	18.3	18.3	18.3	4.25
4.27		Overall width at guide rollers	b <sub>6</sub> (inches)	60	60	60	4.27
4.29		Insert dimension	b <sub>7</sub> (inches)	52.7	52.7	52.7	4.29
4.30		Insert dimension from vehicle centerline	b <sub>8</sub> (inches)	19.5	19.5	19.5	4.30
4.31		Ground clearance, loaded, under mast	m <sub>1</sub> (inches)	3.1	3.1	3.1	4.31
4.32		Ground clearance, center of wheelbase	m <sub>2</sub> (inches)	3.1	3.1	3.1	4.32
4.33		Aisle width for pallets 48 x 40 (L x W)	Ast (inches)	65.7	65.7	65.7	4.33
4.35		Turning radius	Wa (inches)	82.9	86.9	98.5	4.35
4.38		Distance to swivel-forks' pivot point	l <sub>8</sub> (inches)	35.6	35.6	35.6	4.38
4.39		Total lift	h <sub>3</sub> + h <sub>9</sub> (inches)	207	207	207	4.39
4.40		Order picking height	h <sub>12</sub> + 63 (inches)	217	217	217	4.40
4.41	Distance: swivel-forks' pivot point to traverse rack	l <sub>9</sub> - x (inches)	18.3	18.3	18.3	4.41	
4.42	Pallet width	b <sub>12</sub> (inches)	40	40	40	4.42	
4.43	Pallet length	l <sub>6</sub> (inches)	48	48	48	4.43	
4.44	Operator compartment entry width	inches	16.5	16.5	16.5	4.44	
4.45	Operator compartment clear height	inches	82.7	82.7	82.7	4.45	
4.46	Operator compartment outside width	b <sub>9</sub> (inches)	56.7	56.7	56.7	4.46	
4.47	Width traverse motor housing	b <sub>14</sub> (inches)	56.7	56.7	56.7	4.47	
4.48	Width extension arm	l <sub>10</sub> (inches)	6.8	6.8	6.8	4.48	
4.49	Distance: swivel-forks' pivot point to fork face	r (inches)	6.1	6.1	6.1	4.49	
Performance	5.1	Travel speed, loaded/unloaded (rail guided)	mph	6.5 / 6.5 <sup>1)</sup>	6.5 / 6.5 <sup>1)</sup>	6.5 / 6.5 <sup>1)</sup>	5.1
	5.2	Lift speed, loaded/unloaded	ft/min	82.7 / 82.7	92.5 / 92.5 <sup>2)</sup>	92.5 / 92.5 <sup>2)</sup>	5.2
	5.3	Lowering speed, loaded/unloaded	ft/min	88.6 / 88.6	88.6 / 88.6	88.6 / 88.6	5.3
	5.4	Reaching speed, loaded/unloaded	ft/min	49.2 / 49.2 <sup>3)</sup>	49.2 / 49.2 <sup>3)</sup>	49.2 / 49.2 <sup>3)</sup>	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
Motors	6.1	Drive motor rating S <sub>2</sub> 60 min	kW/HP	7.6 / 10.2	7.6 / 10.2	7.6 / 10.2	6.1
	6.2	Lift motor rating at S <sub>2</sub> 25 %	kW/HP	20 / 26.8	20 / 26.8	20 / 26.8	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 (at 6 hour rate)	V/Ah	80 / 465	80 / 620	80 / 930	6.4
	6.5	Battery weight	lbs	2593 - 2866	3263 - 3606	4562 - 5041	6.5
Other Details	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	dB (A)	68	68	68	8.4
	8.6	Steering		electric	electric	electric	8.6

1) possible in connection with performance package to 7.5 mph  
2) possible in connection with performance package to 102.4 ft/min, combined lifting of main and additional lift to 137.8 ft/min  
3) possible in connection with performance package to 78.7 ft/min

Note: for 208" lift height and 118" collapsed mast height; all speeds are based on where conditions will allow maximum operation and performance packages

This specification sheet only provides technical values for the standard truck. Non-standard tires, different masts, different axle widths, additional equipment, etc. could produce other values. Rights reserved for technical changes and improvements.

Standard mast types (inches) Two-stage mast ZT						EKG 513	EKG 515k	EKG 515
Lift height	Total lift	Standing height	Orderpicking height	Collapsed mast height	Extended mast height			
$h_3$	$h_{total} (h_3+h_9)$	$h_{12}$	$h_{15}$	$h_1$	$h_4$			
118	188	135	198	107	219	•	•	•
128	198	144	20	112	229	•	•	•
137	207	154	217	117	239	•	•	•
147	217	164	227	122	248	•	•	•
157	227	174	237	127	258	•	•	•
167	237	184	247	132	268	•	•	•
177	247	194	257	137	278	•	•	•
187	257	203	266	141	288	•	•	•
196	266	213	276	146	298	•	•	•
206	276	223	286	151	308	•	•	•
216	286	233	296	156	317	•	•	•
226	296	243	306	161	327	•	•	•
236	306	253	316	166	337	•	•	•
246	316	263	326	175	347	•	•	•
255	326	272	335	180	357	•	•	•
265	335	282	345	185	367	•	•	•
275	345	292	355	190	377	•	•	•
285	355	302	365	195	386	•	•	•
295	365	312	375	200	396	•	•	•
305	375	322	385	204	406		•	•
315	385	331	394	209	416		•	•
324	394	341	404	218	426		•	•
334	404	351	414	223	436		•	•
344	414	361	424	228	445		•	•
354	424	371	434	233	455		•	•
364	434	381	444	238	465		•	•
374	444	390	453	243	475		•	•
383	453	400	463	248	485			•
393	463	410	473	253	495			•

• Truck model, available mast

Standard mast types (inches) Three-stage mast DZ						EKG 513	EKG 515k	EKG 515
Lift height	Total lift	Standing height	Orderpicking height	Collapsed mast height	Extended mast height			
$h_3$	$h_{total} (h_3+h_9)$	$h_{12}$	$h_{15}$	$h_1$	$h_4$			
157	227	174	237	101	258	•	•	•
167	237	184	247	104	268	•	•	•
177	247	194	257	107	278	•	•	•
187	257	203	266	110	288	•	•	•
196	266	213	276	114	298	•	•	•
206	276	223	286	118	308	•	•	•
216	286	233	296	122	317	•	•	•
226	296	243	306	126	327	•	•	•
236	306	253	316	130	337	•	•	•
246	316	263	326	134	347	•	•	•
255	326	272	335	138	357	•	•	•
265	335	282	345	142	367	•	•	•
275	345	292	355	145	377	•	•	•
285	355	302	365	150	386	•	•	•
295	365	312	375	154	396	•	•	•
305	375	322	385	158	406		•	•
315	385	331	394	162	416		•	•
324	394	341	404	166	426		•	•
334	404	351	414	170	435		•	•
344	414	361	424	174	445		•	•
354	424	371	434	178	455		•	•
364	434	381	444	181	465		•	•
374	444	390	453	185	475		•	•
383	453	400	463	189	485			•
393	463	410	473	192	495			•
403	473	420	483	197	504			•
413	483	430	493	199	514			•
423	493	440	503	202	524			•
433	503	450	513	206	534			•
442	513	459	522	209	544			•
452	522	469	532	213	554			•
462	532	479	542	216	573			•
472	542	489	552	219	573			•
482	552	499	562	223	583			•
492	562	509	572	227	593			•

• Truck model, available mast

# The Jungheinrich Advantage



## **Pioneer of 3-phase AC technology**

Over 250,000 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.

## **High productivity**

- AC motors with high torque.
- Excellent acceleration and fast main and auxiliary lift speeds.
- Simultaneous lifting/lowering of main and auxiliary lift.
- Smooth and quiet fork traverse and rotate system with high function speed.
- Travel speed is maximized depending on travel direction and fork height.
- Fast working cycles with synchronized traverse / rotate (optional).

## **Performance module (optional) for highest versatility**

- "Lifting" module: Lift speed up to 102 ft/min and optimization of traverse/rotate movement with load recognition (EKX 515).
- "Traverse/rotate" module: Load recognition (EKX 513) for automatic adjustment of hydraulic function speeds with and without load.
- "Floor quality recognition" module: Optimization of travel speed (to 7.5 mph) depending on warehouse floor conditions (in connection with RFID floor control).
- "Capacity" module: Increased residual capacities with stabilizers.

## **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.

## **RFID floor quality recognition**

- Truck control with RFID transponder technology.
- Permanent location identification for precise positioning and recognition of all warehouse areas.
- High flexibility regarding programming of truck performance limits based on location (end of aisle slowdown or stop, lift/travel cutoff, speed reduction).
- Optimization of travel speed relative to floor conditions.

# The Jungheinrich Advantage



Battery cover

## Infinite control of hydraulic motor speed for high efficiency

- Hydraulic pump motors only run at speed required to complete requested action so no energy is wasted.
- Powerful, efficient motors run cooler for even greater efficiency.
- Seamless operation of all functions together.

## Integrated Jungheinrich personnel protection system (PPS)

- Optionally available, factory installed and integrated into the truck's electronic control system/CAN-Bus.
- Senses presence of pedestrians in working aisle and alerts operator; slows and/or stops the truck as necessary.

## Ergonomics and comfort

- Generously dimensioned entrance into the operator's cab.
- Large footwells and adjustable knee supports make room for a wide variety of operator sizes.
- Excellent visibility towards the load with low mounted turret and clear view masts.
- The seat is spring cushioned, adjustable and foldable to ensure full-shift comfort.
- Electrically adjustable operating console with color display.
- Soft-key pad (softkey) with number block.
- Truck performance can be set for each specific operator or can be selected by the operator to suit the needs of the load.
- Switchless, two-handed operating concept for reliability.



Entrance

- All hydraulic functions have end of travel dampening for smooth operation and maximum load stability.

## Control and CAN-Bus system

- All functions are adjustable.
- Electronically controlled drive-wheel brake and electromagnetic, laminated, wear-free brake on load wheels.
- Active or passive stabilizers for maximum capacities to high lift heights (optional).

## Commissioning and maintenance

- "Teach-in" process during installation "teaches" the truck the exact configuration of the warehouse for maximum utilization.
- Integrated diagnostic system for remote maintenance via modem.
- Up to 1000 operating hour service intervals.
- Electronics with wear-free sensor system.
- Sealed drive unit with lifetime rated gear oil.

- Revolution counter on wheels with traction control and wear recognition on drive wheel.

## Reliable operation – high utilization

- Robust and wear-free 3-phase AC motors require no down-time for maintenance.
- 70% fewer cables and plugs due to CAN-Bus.
- Extremely torsion-resistant mast for high residual capacities and low mast sway.

## Additional equipment available

- Mechanical rail guidance.
- Inductive (wire) guidance for precise control in the aisle with no mechanical wear of components.
- Modular telescopic forks for multiple pallet dimensions.
- Comfort package "workplace" with workplace lighting, mirror and fans.
- Synchronized rotation of forks.
- Mechanical and electrical support for warehouse material flow management systems.
- Truck preparation for working platforms.
- Modular system for lift and travel stop as well as speed reduction.



Operator's console



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**JUNGHEINRICH**  
Well worthwhile