

High flexibility through modular design and RFID technology

Jungheinrich® proprietary 48-volt 3-phase AC technology for dynamic movement

AC controller for excellent reliability with CAN-Bus technology

High efficiency levels: Double benefit of energy recovery and effective energy management

Ergonomic workplace with electrically-adjustable control console

Warehouse navigation system (optional) for optimized travel



## EKV 410

### High-Rack Turret Truck And Order Picker (2,200 lbs.)

The EKV 410 turret truck ensures a high degree of performance and efficiency in the very narrow aisle warehouse. It sets new standards in terms of flexibility, economic efficiency and ergonomics.

#### **Flexibility through modular design**

Jungheinrich's modular system has more than 5 million configurations, providing flexibility right from the start and allowing the forklift to be tailored specifically to virtually any application. The turret truck's intelligent management system with certified control and CAN-Bus system allows for continued flexibility with the ability to adapt the lift truck to changing requirements.

#### **Powerful and energy efficient**

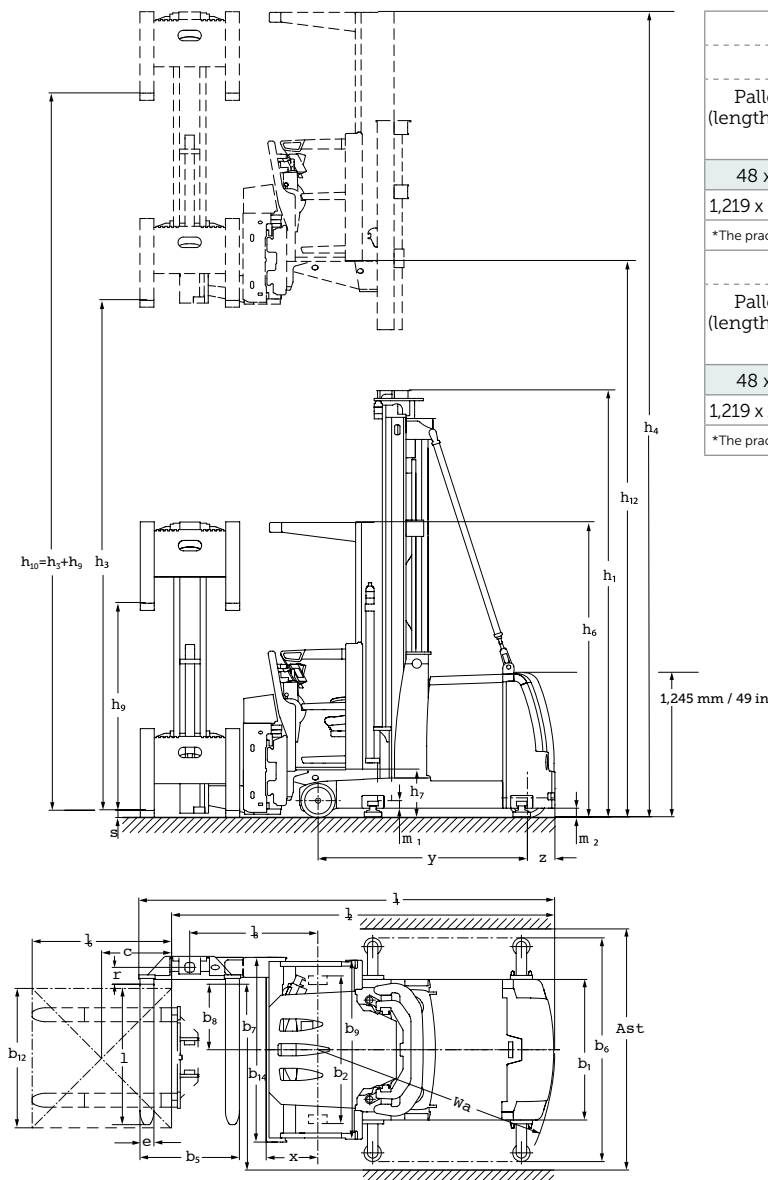
The turret truck is equipped with the best prerequisites for rapid throughput and high efficiency. Jungheinrich's 3-phase AC technology offers higher performance figures and greater dynamics, matched by improved energy utilization. The advantage is up to two shifts of operation without needing to change the battery.

Achieving this level of performance is easy for the EKV operator. The cab offers a generously-sized workplace with outstanding visibility. At the center of the operator's cab is the electrically-adjustable control panel.

Its features include:

- Key operating data available via color display.
- Soft keys to control functions and menus.
- Drive/hydraulic control via thumb operation.
- Two- or one-handed operating capability. Sensors register the lift truck operator's touch and send this information to the on-board computer.

# EKX 410



Standard values for working aisle widths (mm)				
with rail guidance				
Pallet size (length x width)	Stacking-in depth	Clear working aisle width (Ast)	Transfer aisle (Ast <sub>3</sub> ) theoretical	Ast <sub>3</sub> * practical (a=500mm)
48 x 40 in	48 in	65.8 in	147.5 in	19.7 in
1,219 x 1,016 mm	1,219 mm	1,670 mm	3,745 mm	+500 mm
*The practical transfer aisle width is a reference value.				
with guidance				
Pallet size (length x width)	Stacking-in depth	Clear working aisle width (Ast)	Transfer Aisle (Ast <sub>3</sub> ) theoretical	Ast <sub>3</sub> * practical (a=1000mm)
48 x 40 in	48 in	68.5 in	148 in	39.4 in
1,219 x 1,016 mm	1,219 mm	1,740 mm	3,750 mm	+1,000 mm
*The practical transfer aisle width is a reference value.				

		Standard mast types													
		h <sub>3</sub>		h <sub>10</sub> (h <sub>3</sub> +h <sub>9</sub> )		h <sub>12</sub>		h <sub>15</sub>		h <sub>1</sub>		h <sub>2</sub>		h <sub>4</sub>	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
Two-stage mast ZI	118	3,000	188	4,780	136	3,430	199	5,030	102	2,600	—	—	219	5,550	
	137	3,500	207	5,280	155	3,930	218	5,530	112	2,850	—	—	239	6,050	
	157	4,000	227	5,780	175	4,430	238	6,030	122	3,100	—	—	258	6,550	
	177	4,500	247	6,280	195	4,930	258	6,530	131	3,350	—	—	278	7,050	
	196	5,000	266	6,780	214	5,430	277	7,030	141	3,600	—	—	298	7,550	
	216	5,500	286	7,280	234	5,930	297	7,530	151	3,850	—	—	317	8,050	
	236	6,000	306	7,780	254	6,430	317	8,030	161	4,100	—	—	337	8,550	
	255	6,500	325	8,280	273	6,930	336	8,530	172	4,375	—	—	357	9,050	
Three-stage mast DZ	275	7,000	345	8,780	293	7,430	356	9,030	183	4,650	—	—	376	9,550	
	295	7,500	365	9,280	313	7,930	376	9,530	193	4,925	—	—	396	10,050	
	177	4,500	247	6,280	195	4,930	258	6,530	103	2,625	2	75	278	7,050	
	196	5,000	266	6,780	214	5,430	277	7,030	110	2,800	9	250	298	7,550	
	216	5,500	286	7,280	234	5,930	297	7,530	117	2,975	18	460	317	8,050	
	236	6,000	306	7,780	254	6,430	317	8,030	124	3,150	23	600	337	8,550	
	255	6,500	325	8,280	273	6,930	336	8,530	130	3,325	30	775	357	9,050	
	275	7,000	345	8,780	293	7,430	356	9,030	137	3,500	37	950	376	9,550	
295	7,500	365	9,280	313	7,930	376	9,530	144	3,675	44	1,125	396	10,050		

# Technical Data

as of: 12/2012

Identification	1.1	Manufacturer		Jungheinrich			
	1.2	Model		EKX 410			
	1.3	Drive		electric			
	1.4	Type of operation		turret truck / order picker			
Weights	1.5	Load capacity/rated load	Q	lbs	kg	2,200	1,000
	1.6	Load center distance	c	in	mm	24	600
	1.8	Load distance, center of drive axle to fork	x	in	mm	17.6	445
Wheels, Chassis	1.9	Wheelbase	y	in	mm	72.1	1,802
	2.1	Service weight including battery (see line 6.5 for battery weight)		lb	kg	12,518	5,690
	2.2	Axle loading, loaded drive/load		lb	kg	11,440 / 3,278	5,200 / 1,490
Basic Dimensions	2.3	Axle loading, unloaded drive/load		lb	kg	7,898 / 4,620	3,590 / 2,100
	3.1	Tire			Vulkollan®		
	3.2	Tire size, drive		in	mm	11.6 x 5.7	295 x 144
	3.3	Tire size, load		in	mm	13.5 x 4.4	343 x 110
	3.5	Wheels, number load / drive			2/1		
	3.6	Track width, center to center load wheels	b <sub>10</sub>	in	mm	53.4	1,356
	4.2	Collapsed mast height	h <sub>1</sub>	in	mm	142	3,600
	4.4	Lift height, main mast	h <sub>3</sub>	in	mm	196	5,000
	4.5	Extended mast height	h <sub>4</sub>	in	mm	298	7,550
	4.7	Overhead guard (cab) height	h <sub>6</sub>	in	mm	101	2,550
Performance Data	4.8	Operator platform height	h <sub>7</sub>	in	mm	16.9	430
	4.11	Auxiliary lift height	h <sub>9</sub>	in	mm	70	1,780
	4.14	Operator platform height, elevated	h <sub>12</sub>	in	mm	214	5,430
	4.19	Overall length (without load)	l <sub>1</sub>	in	mm	141.1	3,582
	4.20	Length to face of forks	l <sub>2</sub>	in	mm	129.4	3,286
	4.21	Overall width	b <sub>1</sub> / b <sub>2</sub>	in	mm	47.7 / 61.1	1,210 / 1,550
	4.22	Fork dimensions		in	mm	1.57 / 4.7 / 47.3	40 / 120 / 1200
	4.23	Fork carriage, class and type			2/B		
	4.24	Fork carriage width	b <sub>3</sub>	in	mm	34.7	880
	4.25	Width across forks	b <sub>5</sub>	in	mm	33.7	856
	4.27	Width across guide rollers	b <sub>6</sub>	in	mm	65.0	1,600
	4.29	Insert dimension	b <sub>7</sub>	in	mm	52.9	1,343
	4.30	Insert dimension from vehicle center line	b <sub>8</sub>	in	mm	19.9	505
	4.31	Ground clearance, loaded, under mast	m <sub>1</sub>	in	mm	3.1	80
	4.32	Ground clearance, center of wheelbase	m <sub>2</sub>	in	mm	3.1	80
	4.33	Aisle width for pallets 48 x 40 in (1,219 x 1,016 mm)	Ast	in	mm	68.5	1,740
	4.35	Turning radius	Wa	in	mm	80.2	2,039
	4.38	Distance to swivelling-fork pivot point	l <sub>8</sub>	in	mm	26.0	1,103
	4.39	Total lift	h <sub>3</sub> +h <sub>9</sub>	in	mm	266	6,780
	4.40	Order picking height	h <sub>12</sub> +1,600	in	mm	276	7,030
4.41	Distance swivelling fork pivot point-steering rack	l <sub>8</sub> -x	in	mm	25.9	659	
4.42	Pallet width	b <sub>12</sub>	in	mm	40	1,016	
4.43	Pallet length	l <sub>6</sub>	in	mm	48	1,219	
4.44	Clear width driver compartment entrance		in	mm	16.5	420	
4.45	Clear driver compartment height inside		in	mm	82.6	2,100	
4.46	Driver compartment width outside	b <sub>9</sub>	in	mm	56.7	1,440	
4.47	Width swivelling reach frame	b <sub>14</sub>	in	mm	56.7	1,440	
4.48	Width extension arm	l <sub>10</sub>	in	mm	6.8	172	
4.49	Distance swivelling fork pivot point-fork carriage	r	in	mm	5.7	144	
E-Motor	5.1	Travel speed, loaded/unloaded (RG)		mph	km/h	5.5 / 5.5 <sup>1)</sup>	9 / 9 <sup>1)</sup>
	5.2	Lift speed, loaded/unloaded		f/min	m/s	70.8 / 78.7 <sup>2)</sup>	0.36 / 0.40 <sup>2)</sup>
	5.3	Lowering speed, loaded/unloaded		f/min	m/s	78.7 / 78.7	0.40 / 0.40
	5.4	Reaching speed, loaded/unloaded		f/min	m/s	59.0 / 59.0 <sup>3)</sup>	0.30 / 0.30 <sup>3)</sup>
Other	5.10	Service brake			reverse current/regenerative		
	5.11	Parking brake			electric spring loaded/discs		
	6.1	Drive motor rating S <sub>2</sub> 60 min		hp	kW	9.24	6.9
	6.2	Lift motor rating at S <sub>3</sub> 25%		hp	kW	12.73	9.5
	6.4	Battery voltage			V		
Other	6.5	Battery, nominal capacity range			Ah		
	6.5	Battery weight range		lbs	kg	2,115 - 2,338	959.5 - 1,060.5
	8.1	Type of drive control			AC power control		
8.4	Sound level at driver's ear			dB(A)			
8.6	Steering			AC electric			

1) Travel speeds depend on lift heights, type of guidance and floor conditions.  
 2) With performance package option up to 82.7 ft/min or 0.42 m/s.  
 3) With performance package option up to 78.7 ft/min or 0.40 m/s.

# The Jungheinrich Advantage

## Pioneering 3-phase AC technology

Jungheinrich's 3-phase AC technology is trusted worldwide, and this expertise is reflected in our current drive and control generation:

- High throughput levels.
- Low energy consumption.

## Control and CAN-Bus system

- All lift truck movements are programmable.

## Economic energy management

- Double energy saving benefits through regenerative braking and lowering.
- Longer operating times on a single battery charge (up to two shifts in most applications).
- Active energy and battery management.
- Longer battery service life.
- Shorter charging times.
- Battery rollers for quick battery changing.



Battery cover

## RFID ground control (optional)

- Forklift control using transponder technology.
- Continuous measurement of forklift travel distance for precise identification of all warehouse areas.
- High degree of flexibility in terms of switching functions (end of aisle control, lift-travel cutouts, speed reduction).
- Drive speeds optimized according to floor surface.

## Jungheinrich warehouse navigation system (optional)

- Linking the EKX to a Warehouse Management System (WMS) using a radio frequency terminal.
- Direct transfer of the destination in the aisle via the forklift computer.
- Automatic vertical and horizontal positioning in put-away picking modes.
- Effective dual cycling.
- RFID location detection prevents forklifts from reaching incorrect destinations.
- High level of flexibility in the warehouse with adaptation to an existing WMS.
- Throughput improved by up to 25%.

## Ergonomic benefits and comfort

- Generously dimensioned cab entry.
- Outstanding visibility of load and aisle due to low swivelling sideshift.
- Adjustable and foldable cushion seat.
- Electrically-adjustable control panel with color display.
- Soft keys with numeric keypad.
- Switchless two-handed operating concept.
- End position/limit and transfer cushioning of all hydraulic functions.

## Commissioning and maintenance

- Quick and reliable commissioning using "teach-in" process.
- Electronics with wear-free sensor system.
- Transmission oil in swivel bearing does not require replacement during the life of the part.



Intuitive control panel

## Reliable operation

- 70% fewer cables and plugs due to CAN-Bus system.
- Torsion-resistant mast for high residual capacities and reduced mast sway.
- Robust and maintenance-free, three-phase AC drive systems without wearing parts.

## Optional equipment

- Mechanical rail guidance.
- Wire guidance for precise guidance within the aisle without any mechanical stress on components.
- Synchronized swivelling of forks.
- Mechanical and electrical interfaces for material flow management systems.
- Forklift preparation for use with working maintenance platforms.
- Protection switches on overhead load guard.

## Integral Jungheinrich Personnel Protection System (PPS) (optional)

- Laser mounted scanner that detects obstructions (i.e. pedestrians, trucks, etc.) in the line of travel and automatically reduces travel speed and/or stops the truck.

## Parts when you need them

Jungheinrich's Parts Fast or Parts Free Guarantee ensures next-business-day delivery by 5:00 PM of all Jungheinrich parts in the United States, or they're free, including freight. For customers in Canada and Mexico, the guarantee ensures shipping of parts within 24 hours from the time the order was placed by the dealer. See your local Jungheinrich dealer for program details.

\* Programs may be subject to change without notice and may vary by region. Please ask your local Jungheinrich dealer for complete terms and conditions.

