Unique truck concept

Unrestricted view

Modular design

RFID technology

Effective energy management

EFX 410/413

Electric front seat/tri-lateral stacker (1,000/1,250 kg)

The EFX 410 and EFX 413 tri-lateral stackers with 48-V 3-phase AC technology, 1000 to 1250 kg capacity and lift heights up to 7000 mm represent versatility and excellent flexibility in the narrow aisle warehouse. The EFX can be used in guided or free-ranging mode. The main area of application is the combined operation in narrow aisles, wide aisles and the apron area.

The EFX 410 and EFX 413 tri-lateral stackers impress with their ergonomic workstation with comfortable entry and exit, the vibration-absorbing comfort seat which can be adjusted to the operator's weight and height and automotive-style pedal configuration. Large storage areas, clear contours and ergonomic operational devices make work significantly more pleasant and thus faster.

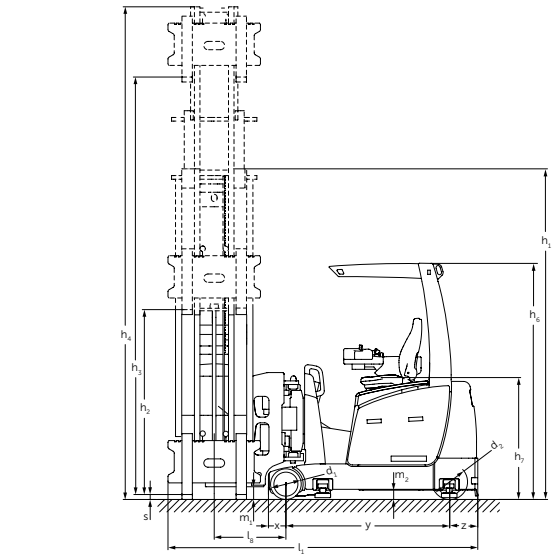
The focal point is the unique truck concept with a front seat and side-mounted mast for an unrestricted view of forks, load and travel route. The performance-enhancing operating concept also features a control panel with infinitely variable height and distance adjustment and large-format display.

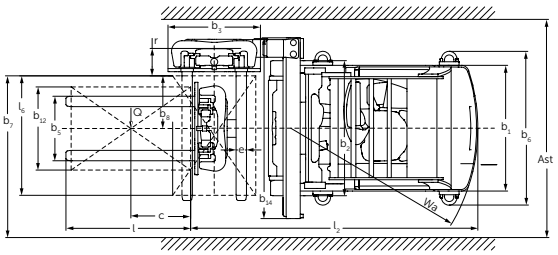
With a whole range of innovative features, this system represents the very latest in ergonomics:

- Ergonomic controls with thumb-activated control of hydraulic functions for lifting, lowering, turning and reaching.
- Integrated sure-grip steering wheel to aid precise, safe handling.
- Information is transmitted via graphic display. Important operating data is displayed rapidly and clearly in icon form.
- Outstanding visibility – unrestricted view of forks, load and travel route.

JUNGHEINRICH

EFX 410/413





Standard values for aisle widths (mm)				
with rail guidance				
Pallet size [mm]	Stacking depth	AST*	Ast/ theoretical VDI	AST** practical
1200 x 800	1200	1740	3187	+500
1200 x 1200	1200	1740	3486	+500
800 x 1200	800	1390	3401	+500
with wire guidance				
Pallet size [mm]	Stacking depth	Ast	Ast/ theoretical VDI	AST** practical
1200 x 800	1200	1810	3187	+1000
1200 x 1200	1200	1810	3486	+1000
800 x 1200	800	1460	3401	+1000

* up to h3 = 4000 mm / for + 20 for h3 > 4000 – 6000 mm / + 70 mm for h3 > 6000 mm

Standard mast designs EFX 410/413				
	Lift h_3 (mm)	Lowered mast height h_1 (mm)	Free lift h_2 (mm)	Extended mast height h_4 (mm)
Duplex ZT	3000[1)]	2305	66	3772
	3250	2430	66	4022
	3500	2555	66	4272
	3750	2680	66	4522
	4000	2805	66	4772
	4250	2930	66	5022
	4500	3055	66	5272
	4750	3250	66	5592
	5000	3375	66	5842
	5250	3500	66	6092
	5500	3625	66	6342
	5750	3750	66	6592
	6000	3875	66	6842
Triplex DZ	4000[1)]	2100	1410	4690
	4250[1)]	2190	1500	4940
	4500[1)]	2280	1590	5190
	4750	2370	1680	5440
	5000	2460	1770	5690
	5250	2550	1860	5940
	5500	2640	1950	6190
	5750	2730	2040	6440
	6000	2820	2130	6690
	6250	2910	2220	6940
	6500	3000	2310	7190
	6750	3090	2400	7440
	7000	3180	2490	7690

[1)] Attention: Overhead guard height 2277 mm or 2370 mm with strobe light on overhead guard

Technical data in line with VDI 2198

Identification	1.1	Manufacturer (abbreviation)			Jungheinrich		
	1.2	Model			**EFX 410**	**EFX 413**	
	1.3	Drive			Electric		
	1.4	Manual, pedestrian, stand-on, seated, order picker operation			tri-lateral stacker		
	1.5	Load capacity/rated load	Q	t	1	1.25	
	1.6	Load centre distance	c	mm	600		
	1.8	Load distance	x	mm	168		
	1.9	Wheelbase	y	mm	1,577		
	1.10	Centre of drive wheel / counterweight	z	mm	270		
Weights	2.1.1	Net weight incl. battery (see row 6.5)		kg	5,080	5,360	
	2.2	Axle loading, laden front/rear		kg	4,860 / 1,300	5,370 / 1,320	
	2.3	Axle loading, unladen front/rear		kg	3,230 / 1,850	3,340 / 2,020	
Wheels / frame	3.1	Tyres			Vulkollan		
	3.2	Tyre size, front		mm	Ø 295 x 144		
	3.3	Tyre size, rear		mm	Ø 343 x 110		
	3.5	Wheels, number front/rear (x = driven wheels)			2 / 1x		
	3.6	Tread width, front	b_{10}	mm	1,406		
Basic dimensions	4.2	Mast height (lowered)	h_1	mm	2,805		
	4.3	Free lift	h_2	mm	66		
	4.4	Lift	h_3	mm	4,000		
	4.5	Extended mast height	h_4	mm	4,772		
	4.7	Height of overhead guard	h_6	mm	2,277		
	4.8	Seat height/standing height	h_7	mm	1,205		
	4.19.2	Total length (without load)		mm	3,135		
	4.20	Length to face of forks	l_2	mm	2,957		
	4.21	Overall width	b_1/b_2	mm	1,210 / 1,550		
	4.22	Fork dimensions	s/e/l	mm	40 / 100 / 1,200		
	4.23	Fork carriage ISO 2328, class/type A, B			2B		
	4.24	Fork carriage width	b_3	mm	890		
	4.25	Width across forks	b_5	mm	850		
	4.27	Width across guide rollers		mm	1,600		
	4.29	Reach, sideways		mm	1,370		
	4.30	Reach, sideways from centre of truck		mm	420		
	4.31	Floor clearance with load under mast	m_1	mm	120		
	4.32	Ground clearance, centre of wheelbase	m_2	mm	85[3)]		
	4.33.6	Aisle width for pallets 1200 × 1200	Ast	mm	1,740		
	4.35	Turning radius	W_a	mm	1,847		
	4.38	Distance swivelling fork pivot point		mm	843		
	4.38.3	Distance of swivelling forks pivot-point to steering rack		mm	675		
	4.38.4	Pallet width		mm	1,200		
	4.38.5	Pallet length		mm	1,200		
	4.38.9	Width of swivel reach frame		mm	1,540		
	4.38.11	Distance of swivelling forks pivot-point to back of forks		mm	267		
Performance data	5.1	Travel speed, laden/unladen		km/h	9 / 9		
	5.2	Lift speed, laden/unladen		m/s	0.41 / 0.41[2)]		
	5.3	Lowering speed, laden/unladen		m/s	0.44 / 0.44		
	5.4	Reaching speed, laden/unladen		m/s	0.2 / 0.2[1)]		
	5.10	Service brake			regenerative		
	5.11	Parking brake			electric spring-loaded		
Electrics	6.1	Drive motor, output S2 60 min.		kW	6.9		
	6.2	Lift motor, output at S3 25%		kW	9.5		
	6.3	Battery as per DIN 43531/35/36 A, B, C, no			5 PzS 625	6 PzS 750	
	6.4	Battery voltage/nominal capacity K5		V/Ah	48 / 625	48 / 750	
	6.5	Battery weight		kg	855	1,010	
Misc.	8.1	Type of drive control			AC Control		
	8.4	Sound pressure level at operator's ear as per EN 12053		dB (A)	66.5		
	8.6	Steering			electric		

[1)] with performance pack up to 0.3 m/s
[2)] with performance pack up to 0.45 m/s
[3)] with transponder reader 45 mm

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

Benefit from the advantages

Folding battery cover

Pioneer of 3-phase AC technology
More than 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.

Control and CAN-Bus system
- All movements can be parameterised.

Cost-effective energy management
- Doubled energy recovery through regenerative braking and lowering.
- Longer operating times with one battery charge (up to 2 shifts).
- Active energy / battery management.
- Longer battery life.
- Shorter charging times.

RFID technology (optional)
- Truck control with transponder technology.
- Permanent route measuring for precise identification of all warehouse areas.
- High degree of flexibility in terms of switching functions (end of aisle control, lift/travel cut-outs, travel speed reductions).
- Drive speeds optimised according to the floor topology.

warehouseNAVIGATION (optional)
- Linking the EFX to a warehouse management system (WMS) using a radio data terminal or scanner.
- Direct acceptance of the destination in the narrow aisle by the truck computer.
- Automatic vertical and horizontal positioning.
- Effective twin cycles.
- RFID location detection prevents trucks travelling to incorrect destinations.
- High level of flexibility in the warehouse with adaptation to existing WMS.
- Throughput improved by up to 25%.

Ergonomics and comfort
- Generously dimensioned entrance into the cab.
- Outstanding view of the load and travel route.
- Cushioned comfort seat absorbs vibrations.
- Operating console with adjustable height and distance from the operator.
- Soft keys with numeric keypad.
- Limit position / transition damping for all hydraulic functions.

Commissioning and maintenance
- Quick and reliable commissioning through teach-in process.
- 1000 operating hours service interval.
- Electronics with non-wearing sensor system.

Reliable operation – high availability
- 70% fewer cables and plugs due to CAN-Bus system.
- Robust and maintenance-free 3-phase AC drive systems without parts wearing.

Additional equipment
- Mechanical rail guidance.
- Wire guidance for precise control in the aisle with no mechanical stress on components.
- Radio with CD player and MP3 interface.
- Synchronised traverse.
- Modular system for lift and travel cut-outs as well as speed reduction.
- Radio data terminal with mechanical and electrical interfaces for material flow management systems.
- Jungheinrich ISM Online – Information System for Truck Management.

Integrated personnel protection system (PPS)
- On-site integration with the safety computer.
- Project planning, commissioning and maintenance by Jungheinrich.

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

Jungheinrich fork lift trucks meet European safety requirements. CE

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