

Unique truck concept
with front seat and
side-mounted mast

Unrestricted view of forks,
load and travel route

High flexibility through
modular design and
RFID technology

Up to 25 percent greater
performance due to
warehouse navigation
with semi-automatic
approach (optional)

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



EFX 410/413

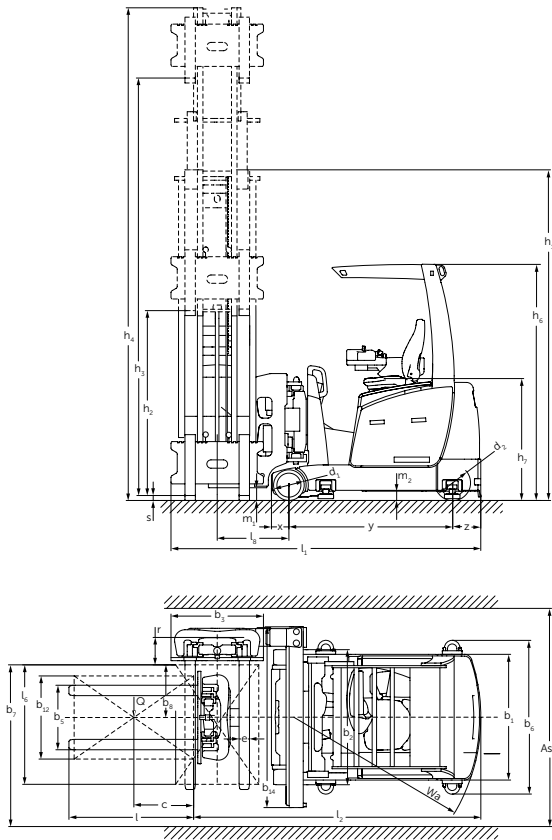
Electric front seat/tri-lateral stacker (1,000/1,250 kg)

The tri-lateral stackers EFX 410 and EFX 413 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 either guided mode or as a free-ranging truck. The advantage: Combined operation in narrow aisles, wide aisles and the loading area. The EFX operator benefits: Thanks to comfortable entry and exit, the vibration-absorbing comfort seat which can be adjusted to the operator's weight and height and automotive pedal arrangement as in a car. Large storage areas, clear contours and the latest 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 the large 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 soft-feel 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 and unrestricted view of forks, load and travel route.

EFX 410/413



Standard values for working aisle widths (mm)				
with rail guidance				
Pallet size [mm]	Stacking depth	AST*	Ast ₃ /VDI theoretical	AST ₃ ** 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 ₃ /VDI theoretical	AST ₃ ** 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

** The practical intersecting aisle width is a guide value.

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

				Jungheinrich		
				EFX 410	EFX 413	
Identification	1.1	Manufacturer (abbreviation)				
	1.2	Model				
	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)		5,080	5,360
2.2		Axle load with load front/rear		4,860 / 1,300	5,370 / 1,320	
2.3		Axle load without load front/rear		3,230 / 1,850	3,340 / 2,020	
Wheels / frame	3.1	Tyres		Vulkollan		
	3.2	Tyre size, front		Ø 295 x 144		
	3.3	Tyre size, rear		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/stand 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 over 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 x 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 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 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	Traverse speed w. / w.o. load		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 rating 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

Benefit from the advantages



Pioneers 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:

- High throughput levels.
- 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 on a single 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 flatness.

Jungheinrich warehouse navigation (optional)

- EFX is linked to a Warehouse Management System (WMS) by a radio data terminal or scanner.
- Direct loading of the destination in narrow aisles via 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%.

Ergonomic benefits and comfort

- Ample entry room.
- 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.
- Maintenance interval of 1000 operating hours.

- Electronics with wear-free sensor system.

Reliable operation – high availability

- 70% fewer cables and plugs due to CAN-Bus system.
- Robust and maintenance-free three-phase AC drive systems - no wearing parts.

Additional equipment

- Mechanical rail guidance.
- Inductive guidance for precise control in the aisle with no mechanical loading of components.
- Radio with CD player and MP3 interface.
- Synchronised traverse.
- Modular system for lift and travel cut-outs as well as speed reduction.
- Jungheinrich radio data terminals with mechanical and electrical interface for material flow management systems.
- Jungheinrich ISM Online: Information system for truck management.

Integrated Jungheinrich 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.



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