

**3-phase AC technology
with high efficiency factor**

**Energy reclamation during
lowering and braking**

Ergonomic swivelling seat

**Minimum working aisle
width requirement through
telescopic forks**

Lift height up to 13000 mm

ETX 513–515



Electric transverse seat/bi-lateral stacker (1000–1200 kg) with telescopic forks

The bi-lateral stackers ETX 513–515 with telescopic forks and 80V 3-phase AC technology, 1000–1200 kg capacity and lift heights up to 13000 mm represent highest performance efficiency in the narrow aisle warehouse. Above all, the ETX captivates through its unique operating concept with swivelling operator place module and various additional options. Among other things, this facilitates a high degree of automation in stacker operations. The ETX with telescopic forks also requires the most minimum working aisle width among all load pick-up devices.

This high performance efficiency is available to the ETX operator with effortless ease: through comfortable mounting and dismounting, height and weight adjustable, vibration-absorbing comfort seat and pedal arrangement as in a motor car. Generous depositing areas, clear contours and the latest ergonomic operational devices make work significantly more pleasant and thus faster.

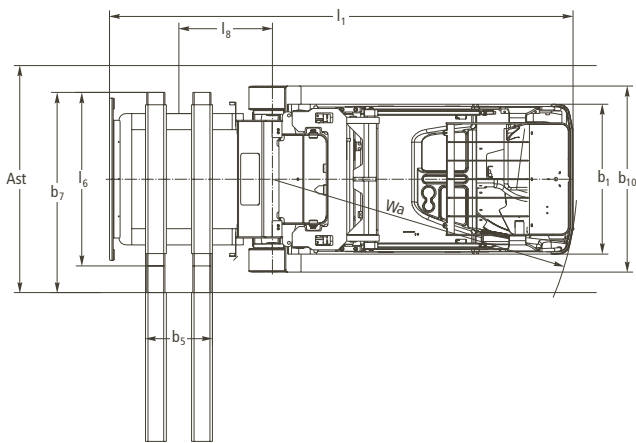
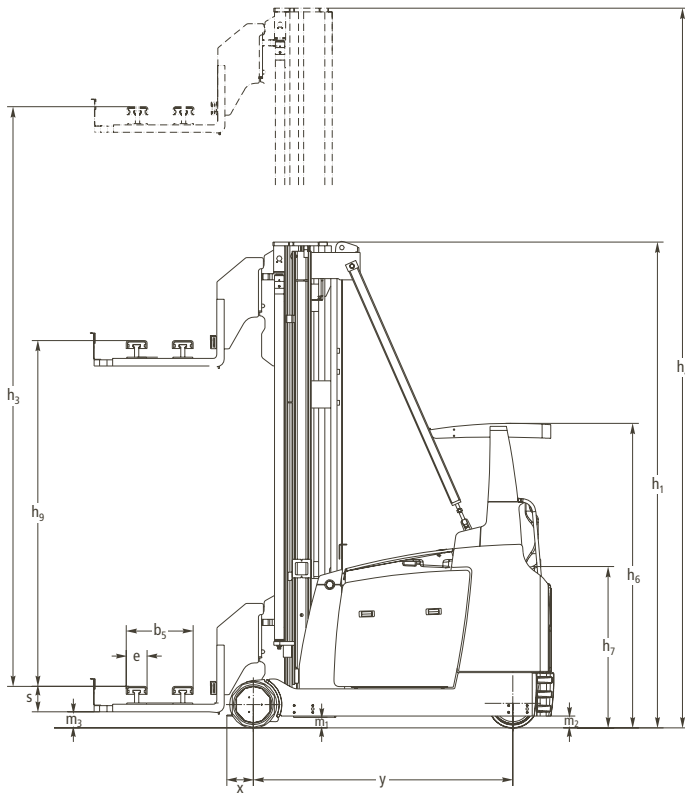
At the centre of the efficiency-promoting operating concept are the swivelling operator place, the operating console that is steplessly adjustable in height and dis-

stance to the operator as well as the large area display. With numerous innovative performance characteristics, they define state of the art system ergonomics:

- Ergonomic operating elements with thumb control of hydraulic functions for lifting, lowering, turning and reaching.
- Integrated handy steering wheel to support precise and safe handling.
- Sideways seat arrangement with swivelling operator seat for fatigue-free operation.
- Information transmission via graphic display. Important operating data are quickly and legibly displayed in pictograms.

 **JUNGHEINRICH**

ETX 513-515



Standard values for working aisle widths (mm)

with rail guidance

Pallet size	Stacking-in depth	Ast	Ast_3 /VDI theoretical ETX 513 T/F	Ast_3 /VDI theoretical ETX 515 T/F	Ast_3^* practical
1200 x 800	1200	1400	3698	3986	+ 500

with inductive guidance

Pallet size	Stacking-in depth	Ast	Ast_3 /VDI theoretical ETX 513 TG	Ast_3 /VDI theoretical ETX 515 T/F	Ast_3^* practical
1200 x 800	1200	1450	3698	3986	+ 1000

* The practical transfer aisle width is a reference value.

Technical Data in line with VDI 2198

Identification	1.1	Manufacturer (abbreviation)	Jungheinrich	Jungheinrich	1.1
	1.2	Manufacturer's type designation	ETX 513	ETX 515	1.2
	1.3	Drive (electric – battery or mains, diesel, petrol, fuel gas, manual)	electric	electric	1.3
	1.4	Type of operation (hand, pedestrian, standing, seated, order picker)	bi-lateral stacker	bi-lateral stacker	1.4
	1.5	Load capacity/rated load Q (t)	1.2 ¹⁾	1.2 ¹⁾	1.5
	1.6	Load centre distance c (mm)	600	600	1.6
	1.8	Load distance, centre of drive axle to fork x (mm)	171	213	1.8
	1.9	Wheelbase y (mm)	1764	2094	1.9
	Weights	2.1	Service weight incl. battery (see line 6.5) kg	6540	7530
2.2		Axle loading, laden front/rear kg	5736/2058	6540/2490	2.2
2.3		Axle loading, unladen front/rear kg	3810/2730	4350/3180	2.3
Wheels, Chassis	3.1	Tyres (solid rubber, superelastic, pneumatic, polyurethane)	Vulkollan®	Vulkollan®	3.1
	3.2	Tyre size, front	295 x 144	380 x 152 ²⁾	3.2
	3.3	Tyre size, rear	400 x 160	400 x 160	3.3
	3.5	Wheels, number front/rear (x = driven wheels)	2/1 x	2/1 x	3.5
	3.6	Track width, front b ₁₀ (mm)	1306	1258	3.6
	Basic Dimensions	4.2	Lowered mast height h ₁ (mm)	3820	3920
4.4		Lift height h ₃ (mm)	5500	5500	4.4
4.5		Extended mast height h ₄ (mm)	6650	6750	4.5
4.7		Overhead load guard (cab) height h ₆ (mm)	2461	2461	4.7
4.8		Seat height/standing height h ₇ (mm)	1360	1360	4.8
4.19		Overall length (unladen) l ₁ (mm)	3423	3711	4.21
4.21		Overall width b ₁ /b ₂ (mm)	1210/1210	1210/1210	4.21
4.22		Fork dimensions s/e/l (mm)	60/180/1200	60/180/1200	4.22
4.25		Width over forks b ₅ (mm)	540	540	4.25
4.29		Reach, lateral b ₇ (mm)	1300	1300	4.29
4.31		Ground clearance, laden, under mast m ₁ (mm)	20	20	4.31
4.32		Ground clearance, centre of wheelbase m ₂ (mm)	90	90	4.32
4.34		Aisle width for pallets 1200 x 800 Ast (mm)	1400	1400	4.32
4.35		Turning radius Wa (mm)	2135	2460	4.35
4.42		Pallet width b ₁₂ (mm)	800	800	4.35
4.43	Pallet length l ₆ (mm)	1200	1200	4.35	
4.45	Clear driver compartment height inside (mm)	1518	1518	4.45	
Performance Data	5.1	Travel speed, laden/unladen km/h	10.5/10.5	10.5/10.5	5.1
	5.2	Lift speed, laden/unladen m/s	0.45/0.46	0.45/0.46	5.2
	5.3	Lowering speed, laden/unladen m/s	0.48/0.48	0.48/0.48	5.3
	5.4	Reach speed, laden/unladen m/s	0.25/0.25	0.25/0.25	5.3
	5.10	Service brake	regenerative/hydraulic	regenerative/hydraulic	5.10
	5.11	Parking brake	electric spring-loaded	electric spring-loaded	5.11
Electric Engine	6.1	Drive motor rating S ₂ 60 min. kW	7	7	6.1
	6.2	Lift motor rating at S ₃ 15% kW	21	21	6.2
	6.3	Battery acc. to DIN 43531/35/36 A, B, C, no	4 EPzS 420	5 EPzS 700	6.3
	6.4	Battery voltage, nominal capacity K ₅ V/Ah	80/420	80/700	6.4
	6.5	Battery weight kg	1238	1863	6.5
Others	8.1	Type of drive control	3-phase AC drive control	3-phase AC drive control	8.1
	8.4	Sound level at driver's ear according to EN 12 053 dB(A)	73	73	8.4
	8.6	Steering	electric	electric	8.6

1) at FT 1000 kg

2) from b₂ = 1350 mm – tyre size front: 380 x 192 mm

Standard mast types (mm) Two-stage mast ZT					Standard mast types (mm) Three-stage mast DZ					
h ₃	h ₁	h ₄	ETX 513	ETX 515	h ₃	h ₁	h ₄	h ₂	ETX 513	ETX 515
3000	2570	4150	•		5500	2900	6650	1750	•	
3000	2670	4250		•	6000	3100	7150	1950	•	
3250	2695	4400	•		6000	3200	7250	1950		•
3250	2795	4500		•	6500	3300	7650	2150	•	
3500	2820	4650	•		6500	3400	7750	2150		•
3500	2920	4750		•	7000	3500	8150	2350	•	
3750	2945	4900	•		7000	3600	8250	2350		•
3750	3045	5000		•	7500	3700	8650	2550	•	
4000	3070	5150	•		7500	3800	8750	2550		•
4000	3170	5250		•	8000	3900	9150	2750	•	
4250	3195	5400	•		8000	4000	9250	2750		•
4250	3295	5500		•	8500	4100	9650	2950	•	
4500	3320	5650	•		8500	4200	9750	2950		•
4500	3420	5750		•	9000	4300	10150	3150	•	
4750	3445	5900	•		9000	4400	10250	3150		•
4750	3545	6000		•	9500	4500	10650	3350	•	
5000	3570	6150	•		9500	4600	10750	3350		•
5000	3670	6250		•	10000	4700	11150	3550	•	
5250	3695	6400	•		10000	4750	11250	3550		•
5250	3795	6500		•	10500	4950	11750	3700		•
5500	3820	6650	•		11000	5100	12250	3850		•
5500	3920	6750		•	11500	5300	12750	4050		•
5750	3945	6900	•		12000	5450	13250	4200		•
5750	4045	7000		•	12500	5650	13750	4400		•
6000	4070	7150	•		13000	5800	14250	4550		•
6000	4170	7250		•						
6250	4195	7400	•							
6250	4295	7500		•						
6500	4320	7650	•							
6500	4420	7750		•						
6750	4445	7900	•							
6750	4545	8000		•						
7000	4570	8150	•							
7000	4720	8250		•						
7250	4695	8400	•							
7250	4845	8500		•						
7500	4820	8650	•							
7500	4970	8750		•						
7750	4945	8900	•							
7750	5095	9000		•						
8000	5070	9150	•							
8000	5220	9250		•						
8250	5345	9500		•						
8500	5470	9750		•						
8750	5595	10000		•						
9000	5720	10250		•						



Make use of the advantages



Operating console

80 V 3-phase AC technology

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

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

Economic efficiency

During lowering of the 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 when braking the travel movement = "re-

generative braking". The energy reclaimed in this way is available for subsequent energy consumption. The advantages:

- Longer operating times with the same battery capacity.
- Shorter battery charging times with at the same time longer battery life.
- Lower investment costs for smaller batteries and lower energy costs.

Reliability

3-phase AC drive control and CAN-Bus make ETX 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 narrow aisles and on aprons.
- Care of components.
- Service-friendly through repairable circuit boards and exchangeable interface.

Standard equipment

- Ergonomic swivelling operator workplace.
- Sprung, adjustable and weight-adjustable operator seat with armrests.
- Operating console adjustable in height and distance to the operator.
- Graphics-suitable display with function keys for status and service displays.
- Ergonomically shaped one-hand operating lever for hydraulic functions.
- Electric power-assisted steering for effortless, sensitive manoeuvring.
- Integrated lift height pre-selection with the choice of stacking automatics.



Foldable battery cover

- Diagonal travel with optimum speed profile dependent on travel direction.
- Computer-supported truck control with CAN-Bus networking.
- Camera/monitor system.
- 3-fold braking system: regenerative braking, spring-loaded brake on drive wheel and hydraulic load wheel brake.
- Energy reclamation during lowering and braking.
- Stepless rpm control of hydraulics aggregate for gentle movement processes with excellent efficiency factor.
- End position and transfer cushioning with start/stop pads of all hydraulic functions.
- Integrated diagnostic system with display and service interface.
- Foldable rear cover for quick access to drive unit.
- Removable battery side panel and foldable battery cover for easy access to built-in battery.

Jungheinrich UK Ltd.

Head Office:

Sherbourne House · Sherbourne Drive
Tilbrook · Milton Keynes MK7 8HX
Phone 01908 363100
Fax 01908 363180

info@jungheinrich.co.uk
www.jungheinrich.co.uk



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