

High performance electric forklift with enclosed, twin AC motor front wheel drive

5 individually adjustable working programmes

High residual carrying capacity

Jungheinrich Curve Control for safer driving and cornering

Maintenance-free multiple disc brakes



## EFG 216kn/316n/320n

**Electric three-wheel & four-wheel forklift truck (1,600/2,000 kg)**

The use of innovative 3-phase AC technology opens up new possibilities and provides numerous advantages for electric forklift trucks:

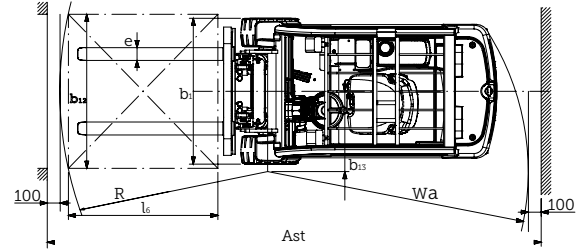
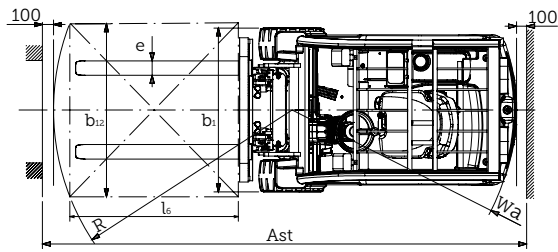
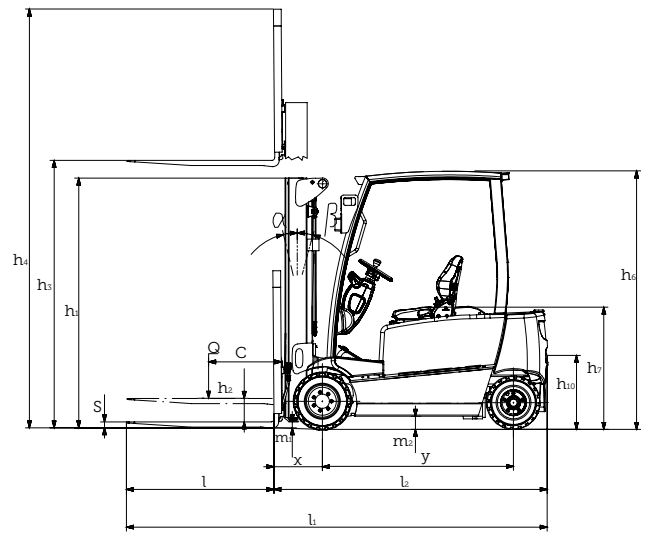
- Excellent performance values for acceleration, travel and lift speeds allow for maximum productivity.
- More work per battery charge as a result of optimum efficiency and more effective energy recovery.
- Precise hydrostatic power steering and solid-state electric braking when the accelerator is released.
- Maintenance-free brushless enclosed 3-phase AC motors protected to IP 54.

This ensures faster working cycles and significantly longer operation per battery charge. Low day-to-day operating costs, together with reduced maintenance requirements, guarantee outstanding economic efficiency.

Compact design makes the three-wheel/ four-wheel truck extremely manoeuvrable and allows fast operation in the most confined spaces for example lorries, containers or railway wagons. The closed design and the front wheel drive ensure a universal suitability and optimal traction on gradients and slippery surfaces.

Technical drawing of a forklift showing dimensions and angles for stability analysis. The diagram includes the following labels:

- $h_4$ : Total height from the ground to the top of the mast.
- $h_3$ : Height from the ground to the top of the counterweight.
- $h_1$ : Height from the ground to the center of gravity of the counterweight.
- $h_2$ : Height from the ground to the center of gravity of the load.
- $h_5$ : Height from the ground to the top of the operator's seat.
- $h_6$ : Height from the ground to the top of the mast.
- $h_7$ : Height from the ground to the top of the rear counterweight.
- $h_{10}$ : Height from the ground to the center of gravity of the rear counterweight.
- $Q$ : Load weight.
- $C$ : Horizontal distance from the mast to the center of gravity of the load.
- $S$ : Horizontal distance from the front wheel to the center of gravity of the counterweight.
- $l$ : Horizontal distance from the front wheel to the center of gravity of the counterweight.
- $l_1$ : Total horizontal distance from the front wheel to the rear wheel.
- $l_2$ : Horizontal distance from the front wheel to the rear wheel.
- $m_1$ : Mass of the counterweight.
- $m_2$ : Mass of the forklift body.
- $y$ : Horizontal distance from the front wheel to the center of gravity of the forklift body.
- $x$ : Horizontal distance from the front wheel to the mast.
- $\alpha$ : Angle of the mast relative to the vertical.
- $\beta$ : Angle of the mast relative to the horizontal.



The graph shows the weight (kg) of three EFG products as a function of their length (mm). The y-axis represents weight in kg, ranging from 600 to 2000. The x-axis represents length in mm, ranging from 200 to 1100. EFG 320n starts at 2000 kg for 500 mm and decreases. EFG 216kn and EFG 316n start at 1600 kg for 500 mm and decrease.

Length (mm)	EFG 320n (kg)	EFG 216kn / EFG 316n (kg)
500	2000	1600
600	1800	1450
700	1650	1300
800	1500	1150
900	1400	1050
1000	1300	950
1100	1200	850

Load centre distance "c" in mm

# EFG 216kn/316n/320n

Standard mast types EFG 216kn/316n/320n						
	Lift $h_3$  (mm)	Lowered mast height $h_1$ (mm)	Free lift $h_2$  (mm)		Extended mast height <sup>1)</sup> $h_4$ (mm)	Mast tilt forward / back $\alpha/\beta$ (°)
			EFG 216kn / 316n	EFG 320n		
Duplex ZT	3000	2000	150	150	4220	7/5
	3300	2150	150	150	4520	7/5
	3600	2300	150	150	4820	7/5
	4000	2500	150	150	5220	7/5
	4500	2800	150	150	5720	7/5
	5000	3050	150	150	6220	7/5
Duplex ZZ	3300	2105	1545	1488	4520	7/5
	3600	2255	1695	1638	4820	7/5
	4000	2455	1895	1838	5220	7/5
Triplex DZ	4500	2005	1445	1388	5720	7/5
	4800	2105	1545	1488	6020	7/5
	5000	2180	1620	1563	6220	7/5
	5500	2355	1795	1738	6720	7/5
	6000	2555	1995	1938	7220	7/5
	6500	2805	2245	2188	7720	7/5

<sup>1)</sup> includes additional load guard height of 665mm

# Technical data in line with VDI 2198

Identification	1.1	Manufacturer (short form)			Jungheinrich		
	1.2	Model			EFG 216kn	EFG 316n	EFG 320n
	1.3	Drive			Electrics		
	1.4	Manual, pedestrian, stand-on, seated, order picker operation			seat		
	1.5	Load capacity/rated load	Q	t	1.6	1.6	2
	1.6	Load centre distance	c	mm	500		
	1.8	Load distance	x	mm	352 <sup>1)</sup>		
	1.9	Wheelbase	y	mm	1,357	1,490	1,490
Weights	2.1.1	Net weight incl. battery (see row 6.5)		kg	2,990	3,025	3,230
	2.2	Axle load, w. load, front / rear		kg	4,015 / 575	3,890 / 730	4,675 / 555
	2.3	Axle load, w.o. load, front / rear		kg	1,410 / 1,580	1,375 / 1,650	1,530 / 1,700
Wheels / chassis	3.1	Tyres			SE / SE		
	3.2	Tyre size, at front		mm	18 x 7-8	18 x 7-8	200 / 50-10
	3.3	Tyre size, at rear		mm	140 / 55-9	16 x 6-8	16 x 6-8
	3.5	Wheels, number front/rear (x = driven wheels)			2x/2		
	3.6	Track width, front	b <sub>10</sub>	mm	904	904	915
	3.7	Track width, rear	b <sub>11</sub>	mm	176	830	830
Basic dimensions	4.1	Tilt of mast/fork carriage forward/backward	$\alpha/\beta$	°	7/5		
	4.2	Mast height (lowered)	h <sub>1</sub>	mm	2,000		
	4.3	Free lift	h <sub>2</sub>	mm	150		
	4.4	Lift	h <sub>3</sub>	mm	3,000		
	4.5	Extended mast height	h <sub>4</sub>	mm	4,220	0	0
	4.7	Height of overhead guard	h <sub>6</sub>	mm	2,000		
	4.8	Seat height/stand height	h <sub>7</sub>	mm	950		
	4.12	Coupling height	h <sub>10</sub>	mm	560	410	410
	4.12.1	2nd coupling height		mm	0	580	580
	4.19	Overall length	l <sub>1</sub>	mm	3,049	3,260	3,260
	4.20	Length incl. back of forks	l <sub>2</sub>	mm	1,899	2,110	2,110
	4.21	Total width	b <sub>1</sub> /b <sub>2</sub>	mm	1,060	1,060	1,120
	4.22	Fork dimensions	s/e/l	mm	40 / 100 / 1,150		
	4.23	Fork carriage ISO 2328, class/type A, B			2A		
	4.24	Fork carriage width	b <sub>3</sub>	mm	980		
	4.31	Floor clearance with load under mast	m <sub>1</sub>	mm	80		
	4.32	Floor clearance centre wheelbase	m <sub>2</sub>	mm	90		
	4.33	Aisle width for pallets 1000 x 1200 sideways	Ast	mm	3,224	3,582	3,582
	4.34	Aisle width for pallets 800 x 1200 lengthways	Ast	mm	3,348	3,782	3,782
	4.35	Turning radius	W <sub>a</sub>	mm	1,545	2,030	2,030
	4.36	Smallest pivot point distance	b <sub>13</sub>	mm	0	635	635
Performance data	5.1	Travel speed, w. / w.o. load		km/h	16 / 16	16.5 / 17	17 / 17.2
	5.2	Lift speed, w. / w.o. load		m/s	0.38 / 0.59	0.47 / 0.61	0.39 / 0.52
	5.3	Lower speed, w. / w.o. load		m/s	0.55 / 0.55		
	5.5	Drawbar pull w. / w.o. load	N		2,150 / 2,450	2,100 / 2,450	1,900 / 2,300
	5.6	Max. drawbar pull, laden/unladen	N		12,700 / 12,700	12,700 / 12,700	12,300 / 12,000
	5.7	Gradeability laden/unladen	%		7.3 / 12.3	7 / 11	5.7 / 10.4
	5.8	Max. gradeability, laden/unladen	%		20 / 35		
	5.9	Acceleration time w. / w.o. load	S		3.8 / 3.4	3.8 / 3.4	4 / 3.5
	5.10	Service brake			Electric / hydraulic	electric / hydraulic	electric / hydraulic
Electrics	6.1	Drive motor rating S2 60 min.		kW	4.0 / 4.0	4.0 / 4	4.0 / 4
	6.2	Lift motor rating at S3 15%		kW	10.0		
	6.3	Battery according to DIN 43531/35/36 A,B,C, no			A 43531		
	6.4	Battery voltage/nominal capacity K5		V/Ah	48 / 625	48 / 750	48 / 750
	6.5	Battery weight		kg	924	1,090	1,090
	6.6	Battery dimensions L/W/H		mm	830 / 630 / 627	830 / 738 / 627	830 / 738 / 627
Misc.	6.6	Energy consumption according to VDI cycle		kWh/h	4.1 <sup>2)</sup>	4.3 <sup>2)</sup>	4.8 <sup>2)</sup>
	8.1	Type of drive control			Impuls/AC		
	8.2	Working pressure for attachments		bar	200		
	8.3	Oil flow for attachments		l/min	25		
	8.4	Sound pressure level at operator's ear according to EN 12053		dB (A)	66	67	67
Misc.	8.5	Trailer coupling, model/type DIN			15170/type H	DIN 15170/H	DIN 15170/H

<sup>1)</sup> 377 mm with DZ mast, with integrated sideshift: x=385 (410 mm with DZ mast), with sideshift attachment: x=410.5 mm (435.5 mm with DZ mast)

<sup>2)</sup> 45 VDI working cycles/h

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

## EFG 216kn/316n/320n



# Benefit from the advantages



Comfort Display



SOLO-PILOT

## Superior operator comfort

Functionality and ergonomic of the driver environment guarantees relaxed and fatigue-free work over long shifts:

- Low access steps. Large, level foot well with automotive pedal lay-out.
- Adjustable steering column and hydraulic comfort seat for optimum seating position.
- Floating cab module cushions road shocks and vibrations.
- Clear view: mast and fork carriage allow for excellent visibility of the load and of the road.
- Hydraulic power steering is precise, requiring the minimal amount of effort without kick-back.
- Comfort Display provides up-to-date information on vital vehicle conditions at a glance.
- Comfortable, fatigue-free operation of direction and hydraulics by SOLO-PILOT control (separate levers).
- Convenient storage for documents and the operators belongings.

## Safe, wear-free braking

Three distinct systems ensure safe, precise and largely wear-free braking:

- Regenerative electric braking and regular brake pedal use.
- Multiple oil disk brakes act as a safety back-up. Wear-free and fully enclosed.

- Parking brake uses the service brake system through a separate electric activation system. Operation warning light in the driver's console.

## Maintenance free electric motors

Proven AC technology: 2 drive motors, hydraulic pump motor, steering motor. High performance, low energy consumption, less maintenance:

- High torque for rapid work cycles.
- Up to 15% higher energy efficiency than shunt motors.
- No brushes, no collector-no maintenance expense.
- Fully enclosed and protected to IP 54. Long life, even under dusty and damp conditions.

## Active safety

Excellent drive dynamics and performance also demand a high degree of safety:

- Curve Control automatically reduces travel speed when cornering.
- Rollback protection ensures controlled operation on ramps and slopes.
- Very low centre of gravity improves stability and residual capacity.
- Unique steering axle with low profile tyres ensures stable handling and smooth travel.

- Electronic and hydraulic overload protection guard.
- Traction Control ensures optimum torque in curves.
- Emergency cut off switch quickly accessible.
- Reliable data transfer between electronic components through CAN-Bus technology.

## Intelligent electronics

Board Control electronic system permanently controls and monitors all truck functions.

- Smooth driving, dynamic reversing and precise load positioning with a minimum use of energy.
- 5 application programmes can be individually adapted to ensure optimal performance in any application.
- Diagnostic system monitors all components and provides service data memory for rapid and cost-effective maintenance.
- Comfort Display with digital service hour meter (actual or cyclic duration factor), battery discharge indicator plus lift cut-out, clock, error code and warning displays.
- Electronic steer wheel position indicator

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