

EP EQUIPMENT PRO

EFL45-HV-PRO

HIGH CAPACITY ELECTRIC COUNTERBALANCED FORKLIFT 4.5T

4500 kg 7000 mm



Compact and Mighty

The EFL40/45/50/55-HV PRO offers more compact sizes while delivering enhanced performance over low-voltage forklift models. Their single front wheel design allows maneuverability in tighter spaces, making them ideal for industries like steel manufacturing, automotive, and heavy machinery production where space can be limited.

SPECIFICATION	REF	UNIT	VALUE
Manufacturer			EP
Model designation			EFL45-HV-PRO
Battery voltage/nominal capacity		V/Ah	309V/173AH
Rated capacity	Q	kg	4500
Load centre distance	c	mm	500
Service weight		kg	6900
Height, mast lowered	h_1	mm	2250
Lift	h_3	mm	3000
Height, mast extended	h_4	mm	4177/3835
Overall length	l_1	mm	4125
Overall width	b_1/b_2	mm	1495
Length to face of forks	l_2	mm	3055
Fork dimensions	s/e/l	mm	50×150×1070
Turning radius	Wa	mm	2680
Drive			Electric
Operator type			Seated

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Features

High Performance: High speed and high gradeability

High-voltage Li-ion batteries enable more power delivery to motors, improving acceleration and travel speeds for high-capacity trucks. PMSMs complement this with rapid response times, swiftly reaching required speeds and torques. This combination of PMSM and high voltage can provide stable and strong power output, which further gives high-capacity trucks excellent climbing capabilities ensuring that the forklift can cope with various applications with ease.



The high-voltage model offers a 1.5-2 times performance improvement over the low-voltage model. Taking the 10-ton model as an example:
100% improvement in travel speed for high voltage models in laden and unladen conditions.
The high-voltage model demonstrates a 45% faster lifting speed.
100% improvement in gradeability when unladen, 45% improvement when laden for high voltage models.



Energy Efficiency: extended runtime and fast charging

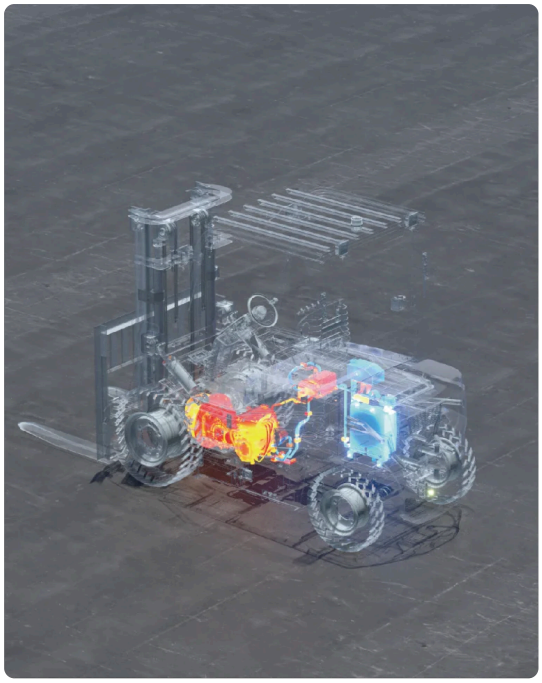
High-voltage Li-ion batteries have high energy density and can store more electrical energy within a compact volume. Notably, these high-voltage Li-ion batteries boast an impressive cycle life of up to 4000 cycles, ensuring long-term durability and minimizing the need for battery replacements.

The PMSMs incorporate advanced control technology to optimize motor efficiency. Unlike traditional AC motors, PMSMs have higher energy conversion efficiency and reduce energy waste.

Equipped with fast charging capabilities, the high-voltage models are compatible with vehicle-grade charging stations and support 1C charging rating, allowing them to be fully charged in as fast as 1-1.2 hours. This minimizes downtime and maximizes productivity, making it ideal for multi-shift operations.

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Safety Assured: Battery, motor protection, monitoring and mast buffering



The central controlling module- VCU (Vehicle Control Unit) extends the safety of the high-voltage forklifts. VCU provides precise control and real-time monitoring of critical parameters to ensure the truck operates within safe limits.

It also features turn speed control, which adjusts the forklift's speed based on the turning angle, ensuring stability during turns. An over-speed alarm alerts the operator if the forklift exceeds the safe speed limit.*

The high-capacity forklift mast is equipped with a hydraulic buffering system that ensures smooth lifting and lowering of loads. The mast width and the mast-to-chassis connection have been widened, providing a wider field of vision and better stability at height, allowing operators to handle loads with greater confidence and precision.

Smart and reliable strategy for thermal management



The high-capacity trucks utilize three distinct cooling systems to ensure optimal performance and reliability. Specifically, two water cooling systems are employed for the motor and the battery, while an oil cooling system is dedicated to the hydraulics system. The upgraded 2-in-1 water cooling unit simplifies pipeline layout, improving system efficiency and reducing potential leakage points while maintaining excellent cooling performance.

The water cooling systems provide superior cooling performance, preventing the truck from overheating even under the most demanding conditions or in the heat of summer.

Additionally, water cooling systems typically operate with less noise compared to air cooling systems that rely on high-speed fans.

The oil cooling system, on the other hand, is used for the hydraulics system. This system ensures that the hydraulic components remain within optimal temperature ranges, thereby maintaining their efficiency and preventing overheating.

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Low maintenance: Longer battery life span and reliable components

Operating at a higher voltage allows the battery to be designed with fewer individual cells. The integrated battery pack design further streamlines the structure, improving reliability while reducing maintenance complexity and potential failure points.

The integrated hydraulic motor design further simplifies the system, improving reliability while reducing maintenance. Key components including the motor, controller and in-house developed battery are all IP67 rated and equipped with water-cooling, ensuring stable performance under demanding conditions.





Sustainability : Zero emissions for cleaner environment

As fully electric trucks powered by lithium-ion batteries, these forklifts produce zero emissions during operation, eliminating exposure to toxic fumes like carbon monoxide and nitrogen oxides. Unlike lead-acid batteries which can leak corrosive acid, lithium-ion batteries do not risk hazardous spills. The high-capacity li-ion trucks contribute to a cleaner and safer indoor working environment without compromising handling capabilities.

Strong adaptability adaptable to harsh outdoor weather conditions

Experience uninterrupted productivity through rain, puddles, and damp conditions with the overall IPX4 rating. Plus an exceptional IP67 rating for high-voltage components. Engineered to withstand harsh temperature, high-capacity trucks offer an ambient temperature range of -20 ℃ ~40 ℃ allowing them to perform no matter climate.



Battery heating when charging comes as a standard function for high capacity models, which is activated when the surrounding temperature is below zero to always offer an optimal temperature range for efficient and safe charging even in cold weather conditions.

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VDI Chart

	SPECIFICATION	REF	UNIT	VALUE
1.1	Manufacturer			EP
1.2	Model designation			EFL45-HV-PRO
1.3	Drive			Electric
1.4	Operator type			Seated
1.5	Rated capacity	Q	kg	4500
1.6	Load centre distance	c	mm	500
1.8	Load distance, centre of drive axle to fork	x	mm	545
1.9	Wheelbase	y	mm	2000
2.1	Service weight		kg	6900
2.2	Axle loading, laden front/rear		kg	10267/1133
2.3	Axle loading, unladen front/rear		kg	3415/3485
3.1	Tyres			Pneumatic
3.2	Tyre size, front		mm	300-15-20PR
3.3	Tyre size, rear		mm	7.00-12-12PR
3.5	Wheels, number front/rear (x=drive wheels)			2x/2
3.6	Tread width, front	b_{10}	mm	1176
3.7	Tread width, rear	b_{11}	mm	1190
4.1	Tilt of mast/fork carriage forward/backward	α/β	°	6/12
4.2	Height, mast lowered	h_1	mm	2250
4.3	Free lift	h_2	mm	150
4.4	Lift	h_3	mm	3000
4.5	Height, mast extended	h_4	mm	4177/3835
4.7	Height of overhead guard (cabin)	h6	mm	2400
4.8	Seat height relating to SIP/stand height	h7	mm	1290
4.12	Coupling height	h10	mm	640
4.19	Overall length	l_1	mm	4125
4.20	Length to face of forks	l_2	mm	3055
4.21	Overall width	b_1/b_2	mm	1495
4.22	Fork dimensions	s/e/l	mm	50×150×1070
4.23	Fork carriage ISO 2328, class/type A, B			3A
4.24	Fork carriage width	b_3	mm	1380 (1424)
4.31	Ground clearance, laden, below mast	m_1	mm	150

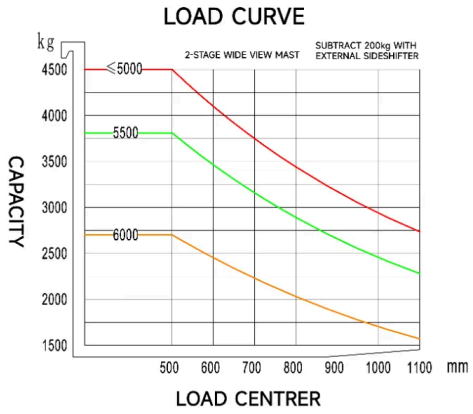
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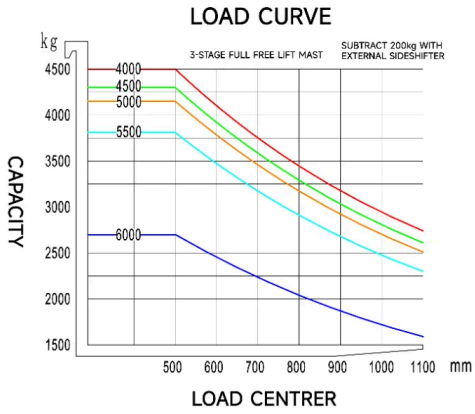
	SPECIFICATION	REF	UNIT	VALUE
4.32	Ground clearance, centre of wheelbase	m_2	mm	180
4.34.1	Aisle width for pallets 1000×1200 crossways	Ast	mm	4495
4.34.2	Aisle width for pallets 800 × 1200 lengthways	Ast	mm	4495
4.35	Turning radius	Wa	mm	2680
5.1	Travel speed, laden/unladen		km/h	24/25
5.2	Lift speed, laden/unladen		m/s	0.43/0.46
5.3	Lowering speed, laden/unladen		m/s	0.42/0.35
5.5	Drawbar pull, laden/unladen			/
5.6	Max. drawbar pull, laden/unladen		N	/
5.8	Max. gradeability, laden/unladen		%	25/28
5.10	Service brake			Mechanical/Hydraulic
5.11	Parking brake			Mechanical
6.1	Drive motor rating S2 60 min		kW	30
6.2	Lift motor rating at S3 15%		kW	27.8
6.4	Battery voltage/nominal capacity		V/Ah	309V/173AH
6.5	Battery weight		kg	500
6.6	Energy consumption according to DIN EN 16796		kWh/h	/ [1)]
6.7	Turnover output according to VDI 2198		t/h	/
6.8	Turnover efficiency according to VDI 2198		t/kWh	/
8.1	Type of drive unit			PMSM
10.2	Oil volume for attachments		ℓ/min	/
10.5	Steering design			Hydraulic
10.7	Sound pressure level at the driver's seat		dB(A)	/
15.1	Charger output current		A	/

Subject to modification of specifications and designs without prior notice as part of continuous product improvement. Images and technical data shown may include optional features and are provided for reference only. All dimensions are subject to standard manufacturing tolerances.

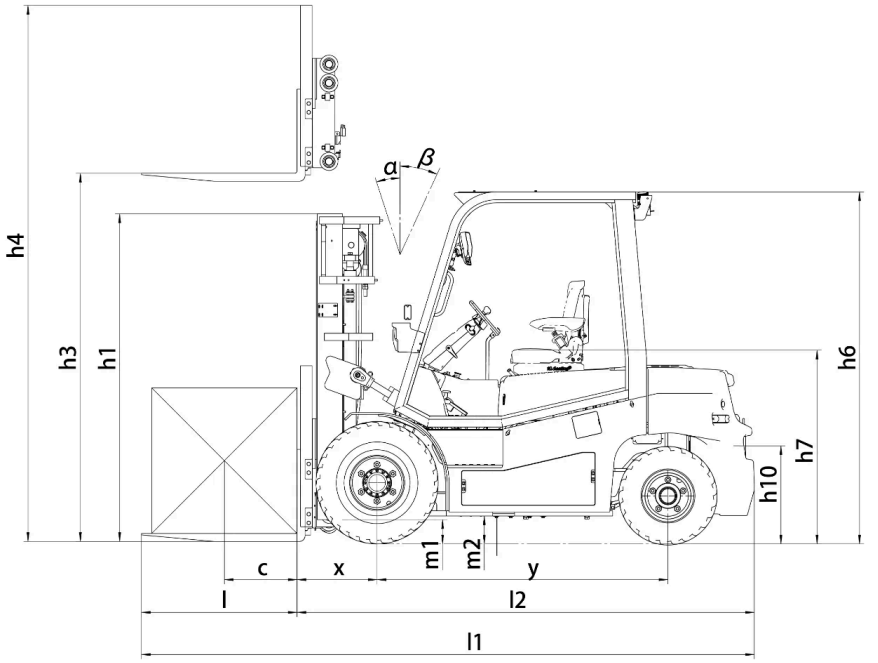
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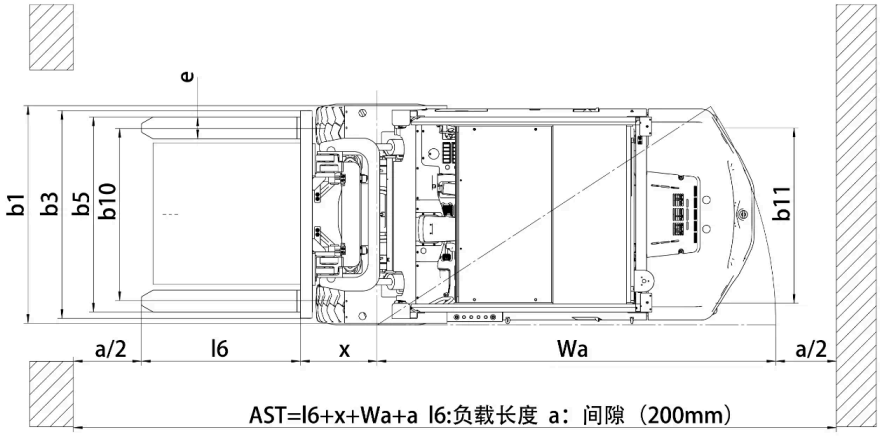
VDI Drawing





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Mast Options

MAST TYPE	LIFT HEIGHT (H3, MM)	MAST LOWERED HEIGHT (H1, MM)	MAST EXTENDED HEIGHT, NO BACKREST (H4, MM)	MAST EXTENDED HEIGHT, WITH BACKREST (H4, MM)	FREE LIFT HEIGHT, NO BACKREST (H2, MM)	FREE LIFT HEIGHT, WITH BACKREST (H2, MM)	FORWARD TILT (A, DEG)	BACKWARD TILT (B, MM)	LOAD DISTANCE (X, MM)
2-Standard Mast	3000	2250	3835	4155	150	150	6	12	500
2-Standard Mast	3500	2500	4335	4655	150	150	6	12	500
2-Standard Mast	3600	2550	4435	4755	150	150	6	12	500

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MAST TYPE	LIFT HEIGHT (H3, MM)	MAST LOWERED HEIGHT (H1, MM)	MAST EXTENDED HEIGHT, NO BACKREST (H4, MM)	MAST EXTENDED HEIGHT, WITH BACKREST (H4, MM)	FREE LIFT HEIGHT, NO BACKREST (H2, MM)	FREE LIFT HEIGHT, WITH BACKREST (H2, MM)	FORWARD TILT (A, DEG)	BACKWARD TILT (B, MM)	LOAD DISTANCE (X, MM)
2-Standard Mast	4000	2750	4835	5155	150	150	6	12	500
2-Standard Mast	4500	3050	5335	5655	150	150	6	6	500
2-Standard Mast	5000	3300	5835	6155	150	150	6	6	500
2-Standard Mast	5500	3600	6335	6655	150	150	3	6	500
2-Standard Mast	6000	3850	6835	7155	150	150	3	6	500
2-Standard Mast	6500	4150	7335	7655	150	150	3	6	500
2-Free Mast	3000	2250	3835	4155	1435	1115	6	12	500
2-Free Mast	3500	2500	4335	4655	1685	1365	6	12	500
2-Free Mast	4000	2750	4835	5155	1935	1615	6	12	500
2-Free Mast	4500	3050	5335	5655	2235	1915	6	6	500
2-Free Mast	5000	3300	5835	6155	2485	2165	6	6	500
2-Free Mast	5500	3600	6335	6655	2785	2465	3	6	500
2-Free Mast	6000	3850	6835	7155	3035	2715	3	6	500
2-Free Mast	6500	4150	7340	7655	3305	3015	3	6	500
3-Free Mast	4000	2080	4740	5155	1360	945	6	12	500
3-Free Mast	4300	2180	5040	5455	1460	1045	6	12	500
3-Free Mast	4500	2247	5242	5657	1527	1112	6	6	500
3-Free Mast	4700	2313	5440	5855	1593	1178	6	6	500
3-Free Mast	4800	2347	5540	5955	1627	1212	6	6	500
3-Free Mast	5000	2413	5740	6155	1693	1278	6	6	500
3-Free Mast	5500	2580	6240	6655	1860	1445	3	6	500
3-Free Mast	6000	2797	6771	7155	2046	1662	3	6	500
3-Free Mast	6500	2963	7269	7655	2214	1828	3	6	500
3-Free Mast	7000	3130	7770	8155	2380	1995	3	6	500

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Options

ITEM	OPTIONS (optional items marked in yellow)
Fork dimension	150*50*1070 | Can be customized
Fork carriage width option	1380mm | es and can be customized
Backrest height	1185mm | Yes and can be customized
Front wheel material	Pneumatic | Normal solid | Non-marking solid
Rear wheel material	Pneumatic | Normal solid | Non-marking solid
Battery capacity	309V173AH | 309V228AH
Charger	309V-65A | 309V-100A | 309V-130A | 309V-200A | 309V-260A
Seat type	KL01 with armrest | GRAMMER-MSG65
Attachments	No | External sideshifter | Fork positioner with sideshift | forkpositioner with pin type forks
Traction pin	Yes and not customized
Warning lamp	LED | rotating warning light | rotating warning light with buzzer
Blue lamp	No | Rear | Front and rear
Area warning lamp	No | Both sides | Both sides and rear | Rear
Buzzer	Buzzer | English
OPS system	Yes and not customized
USB interface	USB TYPE A/C
Telematics	Yes and not customized
Cabin	No | Basic half cabin① | Upgrade half cabin② | Full cabin③ | Upgrade full cabin④
Overhead guard	standard
Turn speed control	No | Yes and not customized
Heating system during lithium battery charging	Yes and not customized
Operator identification device	No | Card reader
Lifting electronic limit	No | Yes and not customized
Hydraulic system operating mode	Fingertip | Mechanical lever
Rear armrest horn	Yes and not customized
Adjustable overspeed alarm	No | Yes and not customized
Mast working light	No | LED*2
Fog light	No | Yes and not customized
Cigarette lighter socket	No | Yes and not customized

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ITEM	OPTIONS (optional items marked in yellow)
Reversing radar	No | reverse radar | reversing camera | reversing radar + backup camera
Travel deceleration function after mast lifting	No | Yes and not customized

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