

EFL60-6-HV-PRO

HIGH CAPACITY ELECTRIC COUNTERBALANCED FORKLIFT 6.0T

 6000 kg  7000 mm



Overcoming the Most Demanding Applications

The EFL50/55/60/70/75-HV PRO caters to industries dealing with extremely heavy loads, such as construction, metalworking, and more. The dual front wheels provide enhanced stability and traction when carrying massive weights. The 30% gradeability, combined with a high ground clearance, makes them adept at navigating inclines, uneven surfaces, and challenging terrain commonly found in rugged applications.

SPECIFICATION	REF	UNIT	VALUE
Manufacturer			EP
Model designation			EFL60-6-HV-PRO
Battery voltage/nominal capacity		V/Ah	309V/228Ah
Rated capacity	Q	kg	6000
Load centre distance	c	mm	600
Service weight		kg	9585
Height, mast lowered	h ₁	mm	2480
Lift	h ₃	mm	3000
Height, mast extended	h ₄	mm	4470/3955
Overall length	l ₁	mm	4720
Overall width	b ₁ /b ₂	mm	2028
Length to face of forks	l ₂	mm	3500
Fork dimensions	s/e/l	mm	60×150×1220
Turning radius	Wa	mm	3235
Drive			Electric
Operator type			Seated

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.

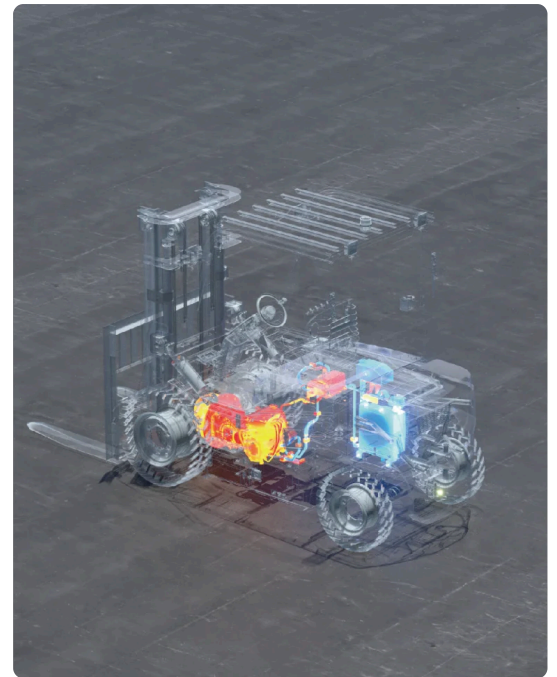


Safety Assured: Battery, motor protection, monitoring and mast buffering

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.



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°C ~ 40°C 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.

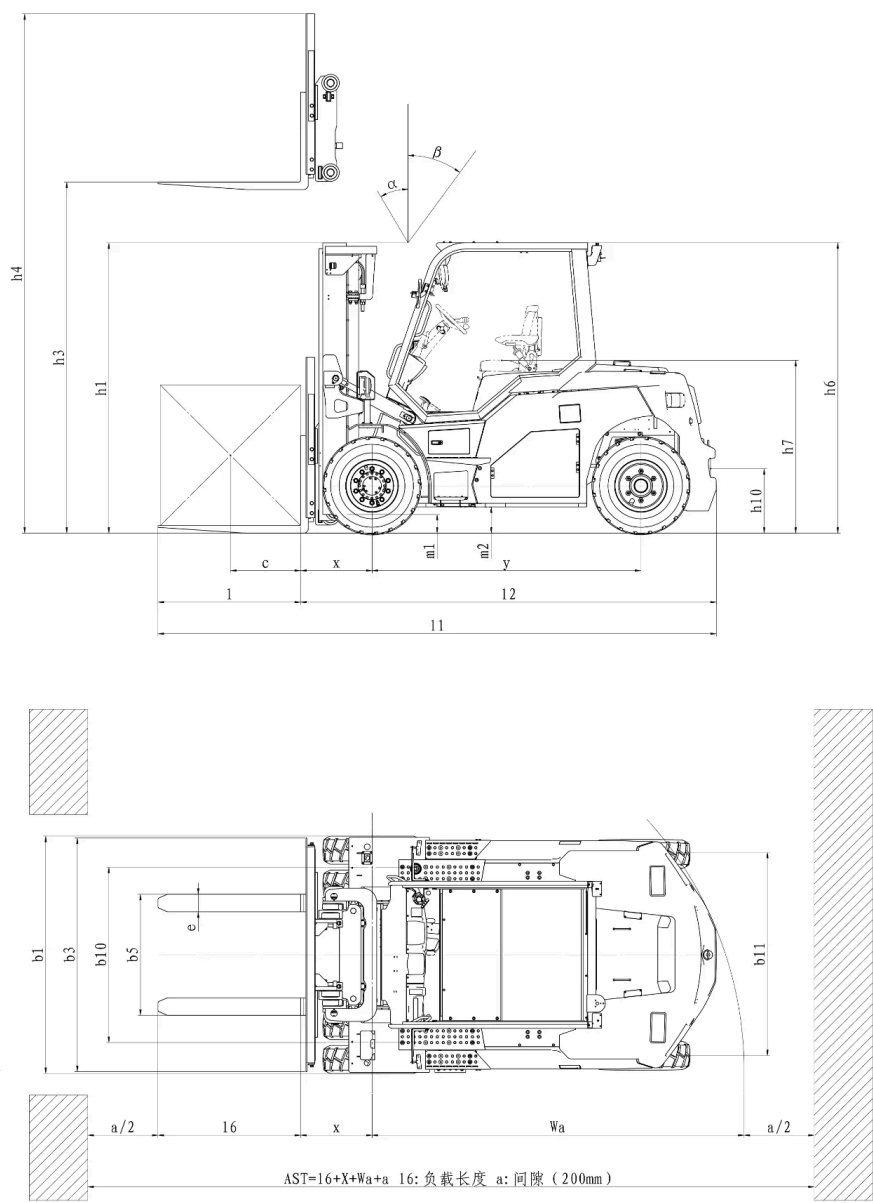


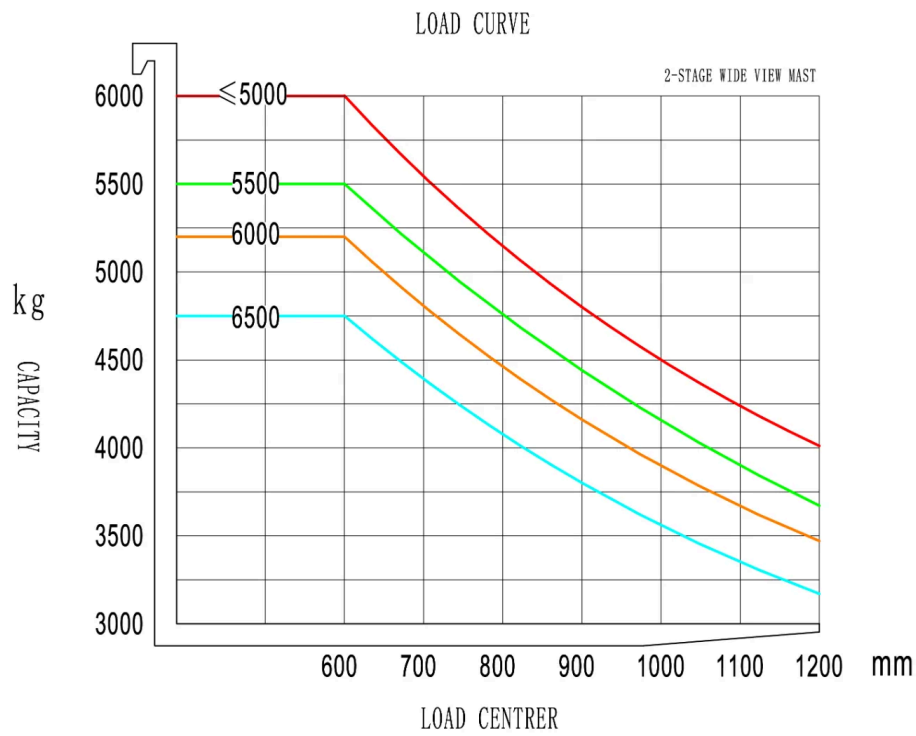
VDI Chart

	SPECIFICATION	REF	UNIT	VALUE
1.1	Manufacturer			EP
1.2	Model designation			EFL60-6-HV-PRO
1.3	Drive			Electric
1.4	Operator type			Seated
1.5	Rated capacity	Q	kg	6000
1.6	Load centre distance	c	mm	600
1.8	Load distance, centre of drive axle to fork	x	mm	603.5
1.9	Wheelbase	y	mm	2300
2.1	Service weight		kg	9585
2.2	Axle loading, laden front/rear		kg	14006/1579
2.3	Axle loading, unladen front/rear		kg	4863/4722
3.1	Tyres			Pneumatic
3.2	Tyre size, front		mm	8.25-15-14PR
3.3	Tyre size, rear		mm	8.25-15-14PR
3.5	Wheels, number front/rear (x=drive wheels)			4x/2
3.6	Tread width, front	b ₁₀	mm	1498
3.7	Tread width, rear	b ₁₁	mm	1718
4.1	Tilt of mast/fork carriage forward/backward	α/β	°	6/12
4.2	Height, mast lowered	h ₁	mm	2480
4.3	Free lift	h ₂	mm	160
4.4	Lift	h ₃	mm	3000
4.5	Height, mast extended	h ₄	mm	4470/3955
4.7	Height of overhead guard (cabin)	h ₆	mm	2460
4.8	Seat height relating to SIP/stand height	h ₇	mm	1470
4.12	Coupling height	h ₁₀	mm	600
4.19	Overall length	l ₁	mm	4720
4.20	Length to face of forks	l ₂	mm	3500
4.21	Overall width	b ₁ /b ₂	mm	2028
4.22	Fork dimensions	s/e/l	mm	60×150×1220
4.23	Fork carriage ISO 2328, class/type A, B			4A
4.24	Fork carriage width		mm	1845 (1995)
4.31	Ground clearance, laden, below mast		mm	160

SPECIFICATION		REF	UNIT	VALUE
4.32	Ground clearance, centre of wheelbase	m ₂	mm	225
4.34.1	Aisle width for pallets 1000×1200 crossways	Ast	mm	5258.5
4.34.2	Aisle width for pallets 800 × 1200 lengthways	Ast	mm	5258.5
4.35	Turning radius	Wa	mm	3235
5.1	Travel speed, laden/unladen		km/h	25/26
5.2	Lift speed, laden/unladen		m/s	0.51/0.56
5.3	Lowering speed, laden/unladen		m/s	0.42/0.43
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	60
6.2	Lift motor rating at S3 15%		kW	78.5
6.4	Battery voltage/nominal capacity		V/Ah	309V/228Ah
6.5	Battery weight		kg	720
6.6	Energy consumption according to DIN EN 16796		kWh/h	/ ¹⁾
6.7	Turnover output according to VDI 2198			/
6.8	Turnover efficiency according to VDI 2198			/
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.





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	2480	3955	4330	160	160	6	12	600
2-Standard Mast	3500	2730	4455	4830	160	160	6	12	600
2-Standard Mast	4000	2980	4955	5330	160	160	6	12	600
2-Standard Mast	4500	3280	5465	5830	160	160	6	6	600
2-Standard Mast	5000	3530	5965	6330	160	160	6	6	600
2-Standard Mast	5500	3830	6515	6830	160	160	3	6	600
2-Standard Mast	6000	4080	7015	7330	160	160	3	6	600
2-Standard Mast	6500	4380	7565	7830	160	160	3	6	600
2-Free Mast	2500	2230	3485	3833	1276	928	6	12	600
2-Free Mast	3000	2480	3985	4333	1526	1178	6	12	600
2-Free Mast	3500	2730	4485	4833	1776	1428	6	12	600

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-Free Mast	4000	2980	4985	5333	2026	1678	6	12	600
2-Free Mast	4500	3280	5495	5833	2316	1978	6	6	600
2-Free Mast	5000	3530	5995	6333	2566	2228	6	6	600
2-Free Mast	5500	3830	6545	6833	2816	2528	3	6	600
2-Free Mast	6000	4080	7045	7333	3066	2778	3	6	600
2-Free Mast	6500	4380	7595	7833	3316	3078	3	6	600
3-Free Mast	4500	2635	5570	5840	1605	1335	6	6	600
3-Free Mast	4800	2735	5870	6140	1705	1435	6	6	600
3-Free Mast	5000	2805	6080	6350	1775	1505	6	6	600
3-Free Mast	5500	3015	6575	6840	1980	1715	3	6	600
3-Free Mast	6000	3185	7085	7340	2140	1885	3	6	600
3-Free Mast	6500	3350	7580	7840	2310	2050	3	6	600
3-Free Mast	7000	3570	8140	8350	2480	2270	3	6	600

Options

ITEM	OPTIONS (optional items marked in yellow)
Fork dimension	150*60*1220 Can be customized
Fork carriage width option	1845mm Yes and can be customized
Backrest height	1361mm 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	309V228AH 309V280AH 309V314AH
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

ITEM	OPTIONS (optional items marked in yellow)
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
Cigarette lighter socket	No Yes and not customized
Fog light	No Yes and not customized
Mast working light	No LED*2
Reversing radar	No reverse radar reversing camera reversing radar + backup camera
Travel deceleration function after mast lifting	No Yes and not customized