

A Series 3-Wheel Electric Forklift with Lithium-ion Technology

with capacities of 3,200 to 4,000lbs

The World of Hangcha

HANGCHA
AMERICA

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ISO14001
IS014001:2015

ISO9001
IS09001:2015

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HANGCHA
AMERICA

LITHIUM POWERED



LI-ION TECHNOLOGY

HANGCHA PROVIDES ***10 YEAR*** OR ***20000 HOURS*** GUARANTEE ON LITHIUM BATTERY.

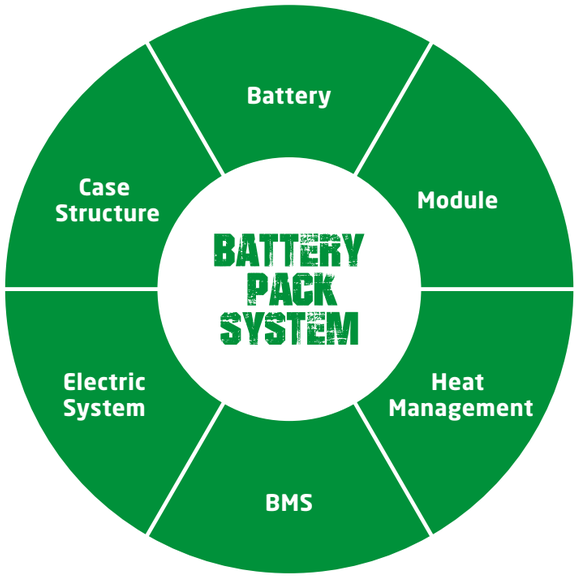
WORKING LIFE 20000 HOURS WARRANTY

10 YEAR WARRANTY

INNOVATIVE SOLUTIONS NEW POWER NOW

Innovative, reliable lithium-ion technology (Lithium Iron-Phosphate), which are developed jointly by HANGCHA and CATL. Battery cells and modules are from CATL, with reliable quality, exclusively for HANGCHA.

- We use square lithium iron phosphate batteries and modules used in large quantities by commercial vehicles in mature economies.
- The module uses an aluminum alloy frame which is sturdy, lightweight and with excellent heat dissipation.
- Safe and effective: Charging efficiency as high as 98%, thermal runaway temperature 600 ℃ or above.
- Adapted to low temperatures: Comes standard with an electrical heating feature , ensuring normal operation in low temperatures.
- Quick charging: 2 hours full charge, economic use of each break.
- Long-working: 4000 charging cycles, capacity retention greater than 80%.
- Maintenance-free: Battery does not require manual maintenance.
- Green and clean: Pollution-free, zero emissions.



Li-Ion
2 hours 100%

Lead-acid batteries
8-10 hours 100%

Rapid charging and opportunity charging ensure continuous availability of vehicles

Allow for fast full charging or boost charging (100 % charge in 2 hours). They are maintenance free and do not require a battery change when used for multi-shift operations.



TITANS CHARGER



Appearance

/ Compact design meets the limited space operation requirement. Eyeball catching designed smooth outline and metal material applied for exposed parts, all provide robust construction of the A series 3W electric counterbalance forklift truck.

Maneuverability

/ Front dual separated driving motors can realize the wheels forward or backward independently, the small turning radius is suitable for narrow channel; Imported reducer, high power driving motor provides a reliable and strong performance.

High Efficiency

/ High power pump motor and low noise gear pump, both improve the lifting speed and work efficiency.
/ Regenerative braking during deceleration is more energy saving and effectively.

Comfort

/ Thanks to the new designed adjustable levers, the operator can work more comfortable. New designed dashboard is easy to see and provides friendly human-computer interaction and with running hours, self diagnosis functions and the battery power show.
/ Both the steering column and seat can be adjusted easily, every operator can find the best driving position.
/ Low vibration and suspension seat reduce the driver's fatigue.

Stability

/ Sinking type battery layout provides good stability especially during cornering.
/ The soft landing system protects the forks from dashing against the ground.

Safety

/ Emergency switch is standard specification which meets the Euro safety regulation.
/ Both electronics and hydraulic system are equipped with overloading protection system.
/ Driving speed is automatically reduction during cornering.

Maintenance

/ Full opened battery cover is easy for battery service and changing.
/ The service engineer can remove the front floor board without any tool, it is convenient for the maintenance.

Advance

/ World famous controller, connectors, battery plug and emergency switch are applied to ensure the reliability of the performance and provides easy service.
/ High frequency MOSFET integrated control system provides accurate control of travelling, lifting and better adjustable performance that better matchs with the motor. No roll-back on ramp is also provided thanks to MOSFET controller. Motor brake is for regenerative braking during deceleration, direction changing, and downward slope.

Standard Specification

/ High efficiency AC driving motor
/ Multi-functions instrument
/ Front dual driving motors
/ Rubber floor mat
/ Solid tyre
/ Emergency disconnect switch
/ 2-valve inside chassis
/ LED headlight
/ Rear combination LED light
/ Panoramic rearview mirror (in the middle position of the overhead guard)
/ 118.1 inch duplex wide view mast
/ Adjustable steering column
/ Full electronic controlled travelling, lifting and steering
/ Horn and reversing buzzer
/ CAN-BUS system
/ Low noise gear pump (Brand: Shimadzu, Made in Japan)
/ Full hydraulic steering
/ Soft landing system
/ Non suspension seat: Grammer GS12 with switch
/ ZF reducer and SCHABMULLER traveling motor

Options

/ 3rd or 4th hydraulic function
/ 98.4~177.2 inch duplex mast
/ 169.3~255.9 inch triplex mast
/ Rear working LED light
/ Reversing assist grip with horn button
/ Integrated sideshifter
/ Other attachments
/ Other dimension forks
/ Special carriage and backrest
/ CATL lithium battery pack
/ Non-marking tyre
/ Battery charger
/ Suspention seat
/ Fingertip control on the adjustable armrest
/ Full closed cabin
/ Blue spot light
/ OPS system





Front dual separated motors



Panoramic rearview mirror



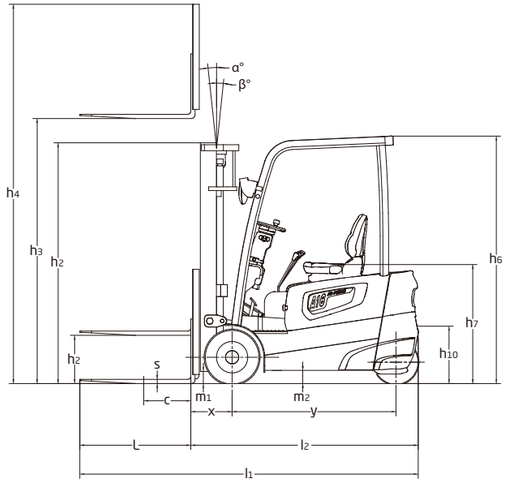
Cover can be easily opened by adjusting the levels forward

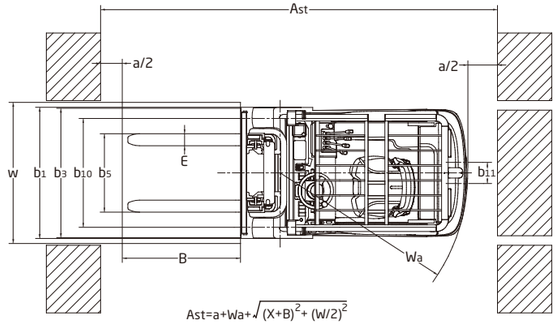


The small turning radius is suitable for narrow aisle

A Series 3-Wheel Electric Forklift Truck With Lithium-ion Battery

				HANGCHA GROUP CO.,LTD.		
	1.1	Manufacturer				
		HCFA Model		FBT16Li	FBT18Li	FBT20Li
Distinguishing mark	1.2	Manufacturers type designation		CPDS16-AD6-I	CPDS18-AD6-I	CPDS20-AD6-I
	1.3	Drive: electric (battery or mains), diesel, petrol, fuel gas		electric	electric	electric
	1.4	Operator type: hand, pedestrian, standing, seated, order-picker		seated	seated	seated
	1.5	Load capacity/rated load	Q (lbs)	3200	3500	4000
	1.6	Load centre distance	c (in)	24	24	24
	1.8	Load distance, centre of drive axle to fork	x (in)	14.0	14.2	14.2
	1.9	Wheelbase	y (in)	53.5	53.5	57.7
Weight	2.1	Service Weight	lbs	6884	7149	7657
	2.2	Axle loading, laden front/rear	lbs	9047/1368	9598/1522	10481/1589
	2.3	Axle loading, unladen front/rear	lbs	3177/3707	3177/4148	3376/4281
Tyres, chassis	3.1	Tyres: solid rubber, superelastic, pneumatic, polyurethane		solid	solid	solid
	3.2	Tyre size, front		18x7 - 8	18x7 - 8	200/50-10
	3.3	Tyre size, rear		15x4.5 - 8	15x4.5 - 8	15x4.5 - 8
	3.5	Wheels, number front rear (x = driven wheels)		2x/2	2x/2	2x/2
	3.6	Tread, front	b_{10} (in)	35.8	35.8	36.0
	3.7	Tread, rear	b_{11} (in)	6.9	6.9	6.9
Dimensions	4.1	Tilt of mast/fork carriage forward/backward	α/β(°)	6/6	6/6	6/6
	4.2	Height, mast lowered	h_1 (in)	78.5	78.5	78.5
	4.3	Free lift	h_2 (in)	5.7	5.7	5.7
	4.4	Lift	h_3 (in)	118.1	118.1	118.1
	4.5	Height, mast extended	h_4 (in)	155.3	155.3	155.3
	4.7	Height of overhead guard STD.	h_6 (in)	80.3	80.3	80.3
		Height of higher overhead guard OPT.	h_6 (in)	83.9	84.8	84.8
	4.8	Seat height	h_7 (in)	39.4	39.4	39.4
	4.12	Coupling height	h_{10} (in)	19.7	19.7	19.7
	4.19	Overall length	l_1 (in)	110.9	111.1	115.4
	4.20	Length to face of forks	l_2 (in)	74.7	74.9	79.1
	4.21	Overall width	b_1 (in)	42.8	42.8	44.1
	4.22	Fork dimensions	s/e/l (in)	1.4/3.9/36.2	1.4/3.9/36.2	1.6/4.8/36.2
	4.23	Fork carriage DIN 15 173 --- ISO 2328, class/type A,B		ISO2328 2A	ISO2328 2A	ISO2328 2A
	4.24	Fork-carriage width	b_3 (in)	39.4	39.4	39.4
	4.25	Distance between fork-arms	b_5 (in)	7.9/39.3	9.4/39.3	9.4/39.3
	4.31	Ground clearance, laden, below mast	m_1 (in)	3.9	3.9	3.9
	4.32	Ground clearance, centre of wheelbase	m_2 (in)	4.3	4.3	4.3
	4.34.1	Aisle width for pallets 1000 x 1200 crossways	Ast (in)	127.4	127.4	131.6
	4.34.2	Aisle width for pallets 800 x 1200 lengthways	Ast (in)	132.3	132.3	136.4
	4.35	Turning radius	Wa (in)	61.2	61.2	65.4
	4.36	Internal turning radius	b_{13} (in)	26.8	28.7	28.7
Performance Data	5.1	Travel speed, laden/unladen	mph	9.9/9.9	9.9/9.9	9.3/9.3
	5.2	Lift speed, laden/unladen	fpm	74.8/92.5	72.8/88.6	68.9/88.6
	5.3	Lowering speed, laden/unladen	fpm	90.6/86.6	90.6/82.7	92.5/82.7
	5.5	Drawbar pull, laden/unladen	lbf	742/877	719/854	686/832
	5.6	Max. Drawbar pull, laden/unladen	lbf	2608/2585	2585/2563	2518/2473
	5.7	Gradeability, laden/unladen	%	16/18	15/17	13/15
	5.8	Max. gradeability, laden/unladen	%	20/20	18/20	15/18
	5.9	Acceleration time, laden/unladen (0-10m)	s	4.7/4.3	4.8/4.4	4.9/4.5
	5.10	Service brake		Hydraulic	Hydraulic	Hydraulic
	5.11	Parking brake		Mechanical	Mechanical	Mechanical
Electric-engine	6.1	Drive motor rating S2 60 min	kW	4.75x2 AC	4.75x2 AC	4.75x2 AC
	6.2	Lift motor rating at S3 15%	kW	9.5 AC	9.5 AC	9.5 AC
	6.3	Battery acc. to DIN 43 531/35/36 A,B,C, no		DIN43531 A	DIN43531 A	DIN43531 A
	6.4	Battery voltage, capacity	V/Ah	48/480	48/480	48/480
		Titans charger		SLC-48200	SLC-48200	SLC-48200
	6.5	Battery weight	lbs	595	595	595
		Battery dimensions	l/b/h(in)	32.7×24.8×24.7	32.7×24.8×24.7	32.7×29×24.7
	6.6	Energy consumption acc. to VDI cycle	kWh/h	4.6	5.0	5.5
		Min. battery weight	lbs	1876	1876	1986
		Max. battery weight	lbs	2207	2207	2427
	8.1	Type of drive control		MOSFET/AC	MOSFET/AC	MOSFET/AC
	9.1	Manufacturer		INMOTION	INMOTION	INMOTION
Addition data	10.1	Operating pressure for attachments	bar	150	150	150
	10.2	Oil volume for attachments	l/min	35	35	35
	10.3	Hydraulic Tank - capacity (drain & refill)	gal	6.87	6.87	7.66
	10.7	Sound level at the driver s ear according to EN / DIN 12 053	dB (A)	73	73	74
	10.8	Towing coupling, type DIN		Φ24 Pin	Φ24 Pin	Φ24 Pin





$$Ast = a + Wa + \sqrt{(X+B)^2 + (W/2)^2}$$

X: Load distance

B: Length of load or forks which is longer

3,200~3,500lb Mast

Type	Model	Lifting height	Overall height			Free lifting height		Front Overhang	Tilting range		Capacity	
			Lowered	Extended		With backrest	Without backrest		Forward	Backward	Load capacity at 24 in (600mm)	
				With backrest	Without backrest						3200lb	3500lb
		in(mm)	in(mm)	in(mm)	in(mm)	in(mm)	in(mm)	in(mm)	deg	deg	lb(kg)	lb(kg)
Duplex wide view mast	M250	98.4(2500)	68.7(1745)	135.6(3445)	120.7(3065)	5.7(145)	5.7(145)	14.2(360)	5.5	6	3200(1450)	3500(1630)
	M270	106.3(2700)	72.6(1845)	143.5(3645)	128.5(3265)	5.7(145)	5.7(145)	14.2(360)	5.5	6	3200(1450)	3500(1630)
	M300	118.1(3000)	78.5(1995)	155.3(3945)	140.4(3565)	5.7(145)	5.7(145)	14.2(360)	5.5	6	3200(1450)	3500(1630)
	M330	129.9(3300)	84.4(2145)	167.1(4245)	152.2(3865)	5.7(145)	5.7(145)	14.2(360)	5.5	6	3200(1450)	3500(1630)
	M350	137.8(3500)	88.4(2245)	175(4445)	160(4065)	5.7(145)	5.7(145)	14.2(360)	5.5	6	3200(1450)	3500(1630)
	M360	141.7(3600)	90.4(2295)	178.9(4545)	164(4165)	5.7(145)	5.7(145)	14.2(360)	5.5	6	3200(1450)	3500(1630)
	M400	157.5(4000)	100.2(2545)	194.7(4945)	179.7(4565)	5.7(145)	5.7(145)	14.2(360)	3.5	5	3200(1450)	3500(1630)
	M430	169.3(4300)	106.7(2710)	206.5(5245)	191.5(4865)	5.7(145)	5.7(145)	14.2(360)	3.5	5	3200(1450)	3400(1540)
	M450	177.2(4500)	111(2820)	214.4(5445)	199.4(5065)	5.7(145)	5.7(145)	14.2(360)	3.5	5	3000(1360)	3400(1540)
Duplex full-free mast	U250	98.4(2500)	68.7(1745)	136(3455)	121.9(3095)	31.5(800)	45.7(1160)	14.9(379)	5.5	6	3200(1450)	3500(1630)
	U270	106.3(2700)	72.6(1845)	143.9(3655)	129.7(3295)	35.4(900)	49.6(1260)	14.9(379)	5.5	6	3200(1450)	3500(1630)
	U300	118.1(3000)	78.5(1995)	155.7(3955)	141.5(3595)	41.3(1050)	55.5(1410)	14.9(379)	5.5	6	3200(1450)	3500(1630)
	U330	129.9(3300)	84.4(2145)	167.5(4255)	153.3(3895)	47.2(1200)	61.4(1560)	14.9(379)	5.5	6	3200(1450)	3500(1630)
	U350	137.8(3500)	88.4(2245)	175.4(4455)	161.2(4095)	51.2(1300)	65.4(1660)	14.9(379)	5.5	6	3200(1450)	3500(1630)
	U360	141.7(3600)	90.4(2295)	179.3(4555)	165.2(4195)	53.1(1350)	67.3(1710)	14.9(379)	5.5	6	3200(1450)	3500(1630)
	U400	157.5(4000)	100.2(2545)	195.1(4955)	180.9(4595)	63(1600)	77.2(1960)	14.9(379)	3.5	5	3200(1450)	3500(1630)
Triplex mast	N400	157.5(4000)	75.2(1910)	195.1(4955)	180.9(4595)	38(965)	52.2(1325)	15.4(390)	3.5	5	3200(1450)	3500(1630)
	N430	169.3(4300)	79.1(2010)	206.9(5255)	192.7(4895)	42(1065)	56.1(1425)	15.4(390)	3.5	5	3100(1410)	3400(1540)
	N450	177.2(4500)	81.7(2075)	214.8(5455)	200.6(5095)	44.5(1130)	58.7(1490)	15.4(390)	3.5	5	3000(1360)	3200(1450)
	N470	185(4700)	83.7(2125)	222.6(5655)	208.5(5295)	46.5(1180)	60.2(1530)	15.4(390)	3.5	5	2861(1298)	3159(1433)
	N480	189(4800)	85.6(2175)	226.6(5755)	212.4(5395)	48.4(1230)	62.6(1590)	15.4(390)	3.5	5	2900(1310)	3200(1450)
	N500	196.9(5000)	88.2(2240)	234.4(5955)	220.3(5595)	51(1295)	65.2(1655)	15.4(390)	3.5	5	2800(1270)	3000(1360)
	N550	216.5(5500)	94.9(2410)	254.1(6455)	240(6095)	57.7(1465)	71.9(1825)	15.4(390)	3.5	5	2500(1130)	2600(1180)
	N600	236.2(6000)	103.3(2625)	273.8(6955)	260.8(6625)	66.1(1680)	79.1(2010)	15.4(390)	3.5	5	2200(1000)	2400(1090)
	N650	255.9(6500)	111.8(2840)	293.5(7455)	282.3(7170)	74.6(1895)	85.8(2180)	15.4(390)	3.5	5	1800(810)	2000(910)

With sideshifter minus 400lb(200kg),with integral sideshifter minus 200lb(100kg).

4,000lb Mast

Type	Model	Lifting height	Overall height			Free lifting height		Front Overhang	Tilting range		Capacity
			Lowered	Extended		With backrest	Without backrest		Forward	Backward	Load capacity at 24 in (600mm)
				With backrest	Without backrest						4000lb
		in(mm)	in(mm)	in(mm)	in(mm)	in(mm)	in(mm)	in(mm)	deg	deg	lb(kg)
Duplex wide view mast	M250	98.4(2500)	68.1(1730)	136.0(3455)	119.4(3033)	5.7(145)	5.7(145)	15.0(380)	5.5	6	4000(1810)
	M270	106.3(2700)	72.0(1830)	143.9(3655)	127.3(3233)	5.7(145)	5.7(145)	15.0(380)	5.5	6	4000(1810)
	M300	118.1(3000)	78.0(1980)	155.7(3955)	139.1(3533)	5.7(145)	5.7(145)	15.0(380)	5.5	6	4000(1810)
	M330	129.9(3300)	83.9(2130)	167.5(4255)	150.9(3833)	5.7(145)	5.7(145)	15.0(380)	5.5	6	4000(1810)
	M350	137.8(3500)	87.8(2230)	175.4(4455)	158.8(4033)	5.7(145)	5.7(145)	15.0(380)	5.5	6	4000(1810)
	M360	141.7(3600)	91.7(2330)	179.3(4555)	162.7(4133)	5.7(145)	5.7(145)	15.0(380)	5.5	6	4000(1810)
	M400	157.5(4000)	101.6(2580)	195.1(4955)	178.5(4533)	5.7(145)	5.7(145)	15.0(380)	3.5	5	4000(1810)
	M430	169.3(4300)	107.5(2730)	206.9(5255)	190.3(4833)	5.7(145)	5.7(145)	15.0(380)	3.5	5	3900(1770)
	M450	177.2(4500)	111.4(2830)	214.8(5455)	198.1(5033)	5.7(145)	5.7(145)	15.0(380)	3.5	5	3800(1720)
Duplex full-free mast	U250	98.4(2500)	68.7(1745)	135.6(3445)	120.4(3059)	31.5(800)	46.7(1186)	15.2(386)	5.5	6	4000(1810)
	U270	106.3(2700)	72.6(1845)	143.5(3645)	128.3(3259)	35.4(900)	50.6(1286)	15.2(386)	5.5	6	4000(1810)
	U300	118.1(3000)	78.5(1995)	155.3(3945)	140.1(3559)	41.3(1050)	56.5(1436)	15.2(386)	5.5	6	4000(1810)
	U330	129.9(3300)	84.4(2145)	167.1(4245)	151.9(3859)	47.2(1200)	62.4(1586)	15.2(386)	5.5	6	4000(1810)
	U350	137.8(3500)	88.4(2245)	175.0(4445)	159.8(4059)	51.2(1300)	66.4(1686)	15.2(386)	5.5	6	4000(1810)
	U360	141.7(3600)	90.4(2295)	178.9(4545)	163.7(4159)	53.1(1350)	68.3(1736)	15.2(386)	5.5	6	4000(1810)
	U400	157.5(4000)	100.2(2545)	194.7(4945)	179.5(4559)	63.0(1600)	78.2(1986)	15.2(386)	3.5	5	4000(1810)
Triplex mast	N400	157.5(4000)	74.0(1880)	198.7(5046)	182.0(4622)	32.8(834)	49.5(1258)	15.6(395)	3.5	5	4000(1810)
	N430	169.3(4300)	78.0(1980)	210.5(5346)	193.8(4922)	36.8(934)	53.5(1358)	15.6(395)	3.5	5	3800(1720)
	N450	177.2(4500)	79.9(2030)	218.7(5556)	202.0(5132)	38.7(984)	55.4(1408)	15.6(395)	3.5	5	3600(1630)
	N470	185(4700)	83.7(2125)	222.6(5655)	208.5(5295)	46.5(1180)	60.2(1530)	15.4(390)	3.5	5	3357(1523)
	N480	189(4800)	83.9(2130)	230.6(5856)	213.5(5422)	42.7(1084)	59.4(1508)	15.6(395)	3.5	5	3400(1540)
	N500	196.9(5000)	86.8(2205)	238.0(6046)	221.3(5622)	45.6(1159)	62.3(1583)	15.6(395)	3.5	5	3200(1450)
	N550	216.5(5500)	93.7(2380)	257.7(6546)	241.0(6122)	52.5(1334)	69.2(1758)	15.6(395)	3.5	5	3000(1360)
	N600	236.2(6000)	101.6(2580)	277.4(7046)	260.7(6622)	60.4(1534)	77.1(1958)	15.6(395)	3.5	5	2600(1180)
	N650	255.9(6500)	111.4(2830)	297.1(7546)	280.4(7122)	70.2(1784)	86.9(2208)	15.6(395)	3.5	5	2200(1000)

With sideshifter minus 400lb(200kg),with integral sideshifter minus 200lb(100kg).

