

FORX

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X SERIES

HI-RANGE PALLET TRUCK
WITH LITHIUM POWER

With capacity of 2,000 to 3,000kg

X SERIES HI-RANGE ELECTRIC PALLET TRUCK

X series Hi-range electric pallet truck are a new generation of products newly developed by Hangcha for warehousing and logistics applications. Using the advanced permanent magnet brushless drive technology and equipped with a new 48V system, the products have advanced performance, comfortable, safe and reliable operations and low use and maintenance costs, and are ideal tools for loading, unloading and handling palletized goods in warehouses, supermarkets and workshops.

RUGGED ON THE OUTSIDE.

- The X series Hi range electric pallet truck adopts a professional industrial design of exterior and a series family design. The vehicle has a smooth vivid profile and a fully ergonomic design, following the latest exterior design trend.
- Made of high-strength steel plates that are molded by stamping, the vehicle exterior is robust, durable and high-grade, and meets environmental protection requirements.



HIGH PERFORMANCE

- With high power drive motor, provides fast travel speed and good gradeability.
- The permanent magnet synchronous drive system has excellent performance and low energy consumption. The 48V power supply system has less heat generated.
- With the VCU control, the vehicle can be controlled accurately, stably and more efficiently.



Charging port.



(Option) Lithium battery with the on-board charger (48V, 20A)
(Excluding model F2)

Pedestrian type

 **6.0 km/h**
Travel speed
(laden)

 **10%**
Gradeability
(laden) [2t]

Stand-on type

 **9.5 km/h**
Travel speed
(laden) [2t]

 **10%**
Gradeability
(laden) [2t]

The electronic steering provided for the standard configuration enables easier and more flexible operation.



ENJOY YOUR WORK.

Customer can choose different width of outside fork and length of forks to fit variable pallet



The new torsion bar - equipped auxiliary wheel system enables the vehicle to drive stably.



The standing driving pedal with shock-absorbing design significantly improves standing driving comfort and reduces long-time driving fatigue.

RELIABILITY

- With the low center of gravity design and a high-strength steel frame structure, the vehicle frame has a large residual load capacity.
- The hydraulic power unit applied to provide low noise, low vibration, smooth lifting and landing reliable operation.



MORE PROTECT



Water-proof plugs and connectors applied to provide a reliable protection to electric system.



The integral metal rear hood can withstand external impact.



The stamped fork with higher strength and impact resistance, and guided fork prongs, further improve operation efficiency.

NEW TILLER

- The newly developed tiller is compact and stylish.
- Displayed turtle speed function applied to move slowly and helps to stack goods in narrow spaces.



PIN code access

COMFORT

- Optimized designing structure to offer a good visibility and easy entrance of the pallet.
- Using non-contact proximity switch, it can provides long life and reliable operation.
- The compact body and big rounded design provide an ideal operation in limited space, and the wedge designed chassis greatly increases the passing ability.



- Optimized rod which is stable, reliable and subject to a small force



6 YEARS WARRANTY

Pedestrian type use the new design drive system, the drive motor will not accompany the tiller rotation, it can keep all the cable connect to the drive motor avoid being bent.





PROTECT YOUR INVESTMENT

WITH THREE BRAKING TYPES:

Releasing brake, reversing brake and emergency brake, the driving safety has been ensured.



The emergency button on the tiller head can effectively avoid the harm to the driver.



Lifting limitation switch to offer protection to the loads from damaging.



48V
VOLTAGE

PERMANENT MAGNET
SYNCHRONOUS DRIVE MOTOR

Maintenance-free permanent
magnet synchronous motor.

MAINTENANCE

- All shafts installed lubricated shaft sleeve and oil cup, provide convenient maintenance and long service life.
- Rear cover can be completely open, operator can see all the components so the maintenance is very convenient.

The fault information can be checked directly via the interactive instruments instead of the manual.



Features

Truck	Standard	Options
48V permanent magnet synchronous drive motor	●	
Hydraulic power unit	●	
PU drive wheel	●	
1150mm fork length	●	
540mm outside fork width	●	
Balance wheels	●	
Double load wheels	●	
Different length of forks		○
Different width of outside fork		○
Single load wheel		○
48V/105Ah lithium battery (EVE)	●	
48V/125Ah lithium battery (CATL)		○
Controls and instruments		
Multi-function tiller	●	
USB power supply	●	
Key switch		○
Electric steering(stand-on type)	●	
Systech controller	●	
Interactive meter	●	
Electronic lifting limitation	●	
PIN code access	●	
Safety		
Emergency disconnect switch	●	
Turning deceleration(stand-on type)	●	
Horn	●	
Other		
48V30A charger		○
48V50A charger		○
Lithium battery(48V/105Ah, EVE) with the on-board charger(48V, 20A)(Excluding model F2)		○



LITHIUM POWERED

EMPOWER YOURSELF WITH THE BEST



Li
Lithium

POWER THE POSSIBILITIES
RELIABLE LITHIUM-ION TECHNOLOGY



LITHIUM BATTERY ADVANTAGES



Long service life

4000 full charging cycles with at least 75% residual capacity.



Return on investment

Add flexibility to your operation, cost-saving in the long term, increased efficiencies.



Maintenance free

No topping up of water or checking acid levels.



High energy density

The high energy density of the Li-ion battery ensures long working times and increases the high availability.



Cold area application

Li-ion batteries maintain high performance at temperatures below freezing.



High safety and reliability

Intelligent battery management monitoring every important function, no emission of battery gasses.



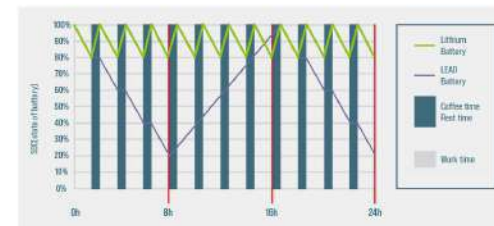
Opportunity charging

Full performance during several shifts thanks to effective interim charging.

FEATURES & BENEFITS THE DIFFERENCE

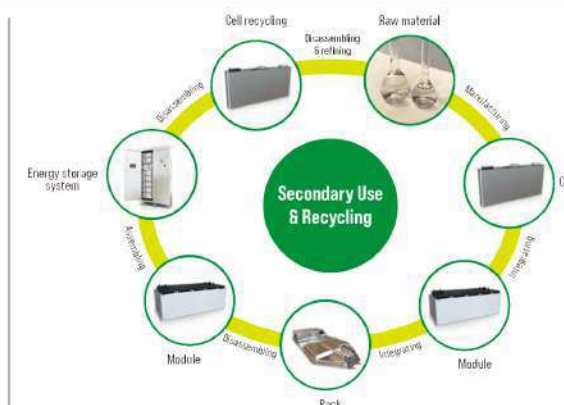
Efficiency

By quick opportunity charging any downtime, such as a lunch break, can be efficiently used and the battery is recharged in a very short period of time. Interim charging does not affect the battery service life.



Safety

- / Intelligent battery management monitoring every important function.
- / Higher user safety, thanks to acid-free use.
- / User friendly due to avoided battery change.
- / No emission of battery gasses.



QUESTION 1

Q: What are the characteristics of lithium batteries, especially when used in high and low temperature environments?

Charging temperature: -30°C ~ 65°C
Discharge temperature: -30°C ~ 65°C
Storage environment temperature: -30°C ~ 65°C

After the truck key switch is closed, the instrument battery condition needs to be checked:

1. Confirm that there is no battery system alarm message on the instrument panel.
2. Please check the remaining power before use. It is recommended to use the SOC between 50% and 100%.
3. If the SOC is lower than 20%, it is not recommended to continue using it. Please charge it as soon as possible.

QUESTION 2

Q: What is the charging time and usage time calculation of forklift lithium battery?

1. Available power of lithium battery (kWh) = rated voltage × rated power × 80%
[To avoid over-discharge damaging the battery, the forklift is equipped with low power protection (less than 10%).]
2. Charging time (h) = rated capacity of lithium battery (Ah) × 90% ÷ charger output current (A).
3. The power consumed for charging (kWh) = the available power of the lithium battery × 93% [the charging efficiency of the charger is calculated as 93%].
4. Usage time (h) = available power of lithium battery ÷ energy consumption data.

For specific energy consumption values, please refer to the technical table on the sharing platform.

QUESTION 3

Q: How does Hangcha BMS work to ensure the safety of the lithium battery?

HANGCHA BMS (battery management system) can monitor the cells' at all times. As a result, hangcha lithium power is the reliable solution.



Battery Safety Management:

Overcharge / over discharge protection
Overcurrent / over-temperature / low-temperature protection
Multi-level fault diagnosis protection
Double fault monitoring



Battery Parameter Detection:

Battery voltage detection and analysis
Battery current detection and analysis
Battery temperature detection and analysis



Equilibrium Management:

Equalization based on voltage mode
Equalization based on time mode
Equalization based on battery cell SOC
Active/passive equalization optional



Other Features:

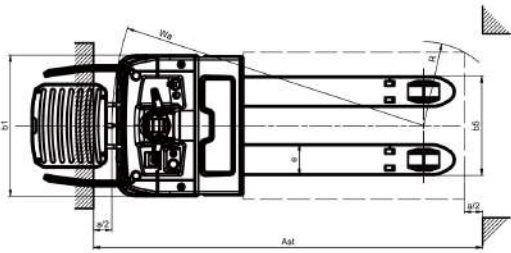
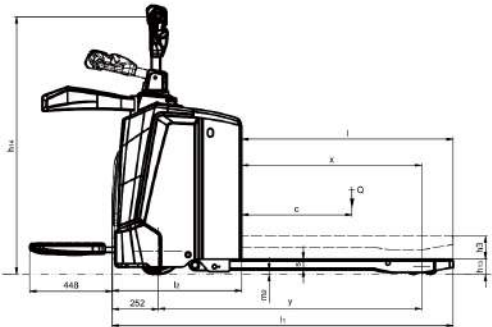
Low cost / low power consumption
Historical data record
Flexible cascade expansion
CPC data validation

Technical data

Distinguishing mark	1.1	Manufacturer (abbreviation)		HANGCHA GROUP CO.,LTD.	
	1.2	Manufacturer's type designation		CB020-XT1S-SI CB020-XT1S-SIF2	CB030-XT1S-SI CB030-XT1S-SIF2
	1.3	Drive: electric (battery type, mains, ...), diesel, petrol, fuel gas		Electric	Electric
	1.4	Operator type: hand, pedestrian, standing, seated, order-picker		Standing	Standing
	1.5	Rated capacity/rated load	kg	2000	3000
Weight	1.6	Load centre distance	c (mm)	600	600
	1.8	Load distance, centre of drive axle to fork	x (mm)	912/980	912/980
	1.9	Wheelbase	y (mm)	1364/1432	1364/1432
	2.1	Service weight	kg	610	610
	2.2	Axle loading, laden front/rear	kg	950/1660	1310/2300
Tyres, chassis	2.3	Axle loading, unladen front/rear	kg	500/110	500/110
	3.1	Tyres: solid rubber, superelastic, pneumatic, polyurethane		PU	PU
	3.2	Tyre size, front		Ø250-80	Ø250-80
	3.3	Tyre size, rear		Ø83-80	Ø83-80
	3.4	Additional wheels (dimensions)		Ø125-50	Ø125-50
Dimensions	3.5	Wheels, number front/rear [- = driven wheels]		1x +2/4	1x +2/4
	3.6	Tread, front	b10 (mm)	505	505
	3.7	Tread, rear	b11 (mm)	370	370
	4.4	Lift	h3 (mm)	125	125
	4.9	Height drawbar in driving position min./max.	h14 (mm)	1170/1400	1170/1400
Performance data	4.15	Height, lowered	h13 (mm)	85	85
	4.19	Overall length	l1 (mm)	1854	1854
	4.20	Length to face of forks	l2 (mm)	704	704
	4.21	Overall width	b1/b2 (mm)	770	770
	4.22	Fork dimensions DIN ISO 2331	s/e/l (mm)	60/170/1150	60/170/1150
Electric-engine	4.25	Fork spread	b5 (mm)	540	540
	4.32	Ground clearance, centre of wheelbase	m2 (mm)	23	23
	4.34.1	Aisle width for pallets 1000 × 1200 crossways	Aa1 (mm)	2064[2502] ¹⁾	2064[2502] ¹⁾
	4.34.2	Aisle width for pallets 800 × 1200 lengthways	Aa2 (mm)	2114[2552] ²⁾	2114[2552] ²⁾
	4.35	Turning radius	Wa (mm)	1627[2065] ³⁾	1627[2065] ³⁾
Performance data	5.1	Travel speed, laden/unladen	km/h	9.5/12.5	7.5/12.5
	5.2	Lift speed, laden/unladen	m/s	0.05/0.07	0.04/0.07
	5.3	Lowering speed, laden/unladen	m/s	0.06/0.06	0.05/0.04
	5.8	Max. gradeability, laden/unladen	%	10/16	6/16
	5.10	Service brake		Regenerative	Regenerative
Electric-engine	6.1	Drive motor rating S2 60 min	kW	2.2	2.2
	6.2	Lift motor rating at S3 15 %	kW	2.2	2.2
	6.4	Battery voltage/nominal capacity	V/Ah	48/105	48/105
	6.5	Battery weight	kg	60	60

Note: 1) According to VDI2198 standard+430mm, 2)According to VDI2198 standard+238mm, 3)Fork lower +68mm

✱ F2: Means the cold storage truck model F2 are suitable for use in cold storage environments down to -30 °C.



Technical data

Distinguishing mark	1.1	Manufacturer (abbreviation)		HANGCHA GROUP CO.,LTD.	
	1.2	Manufacturer's type designation		CB020-XT1-SI	CB030-XT1-SI
	1.3	Drive: electric (battery type, mains, ...), diesel, petrol, fuel gas		Electric	Electric
	1.4	Operator type: hand, pedestrian, standing, seated, order-picker		pedestrian	pedestrian
	1.5	Rated capacity/rated load	kg	2000	3000
Weight	1.6	Load centre distance	c (mm)	600	600
	1.8	Load distance, centre of drive axle to fork	x (mm)	912/980	912/980
	1.9	Wheelbase	y (mm)	1340/1406	1340/1406
	2.1	Service weight	kg	450	450
	2.2	Axle loading, laden front/rear	kg	840/1610	1110/2340
Tyres, chassis	2.3	Axle loading, unladen front/rear	kg	350/100	350/100
	3.1	Tyres: solid rubber, superelastic, pneumatic, polyurethane		PU	PU
	3.2	Tyre size, front		Ø250-80	Ø250-80
	3.3	Tyre size, rear		Ø83-80	Ø83-80
	3.4	Additional wheels (dimensions)		Ø125-50	Ø125-50
Dimensions	3.5	Wheels, number front/rear [- = driven wheels]		1x +2/4	1x +2/4
	3.6	Tread, front	b10 (mm)	475	475
	3.7	Tread, rear	b11 (mm)	370	370
	4.4	Lift	h3 (mm)	125	125
	4.9	Height drawbar in driving position min./max.	h14 (mm)	800/1220	800/1220
Performance data	4.15	Height, lowered	h13 (mm)	85	85
	4.19	Overall length	l1 (mm)	1745	1745
	4.20	Length to face of forks	l2 (mm)	595	595
	4.21	Overall width	b1/b2 (mm)	735	735
	4.22	Fork dimensions DIN ISO 2331	s/e/l (mm)	60/170/1150	60/170/1150
Electric-engine	4.25	Fork spread	b5 (mm)	540	540
	4.32	Ground clearance, centre of wheelbase	m2 (mm)	23	23
	4.34.1	Aisle width for pallets 1000 × 1200 crossways	Aa1 (mm)	1986 ¹⁾	1986 ¹⁾
	4.34.2	Aisle width for pallets 800 × 1200 lengthways	Aa2 (mm)	2036 ²⁾	2036 ²⁾
	4.35	Turning radius	Wa (mm)	1548 ³⁾	1548 ³⁾
Performance data	5.1	Travel speed, laden/unladen	km/h	6/6	6/6
	5.2	Lift speed, laden/unladen	m/s	0.05/0.07	0.04/0.07
	5.3	Lowering speed, laden/unladen	m/s	0.06/0.06	0.05/0.04
	5.8	Max. gradeability, laden/unladen	%	10/20	6/20
	5.10	Service brake		Regenerative	Regenerative
Electric-engine	6.1	Drive motor rating S2 60 min	kW	2.2	2.2
	6.2	Lift motor rating at S3 15 %	kW	2.2	2.2
	6.4	Battery voltage/nominal capacity	V/Ah	48/105	48/105
	6.5	Battery weight	kg	60	60

Note: 1) According to VDI2198 standard+430mm, 2)According to VDI2198 standard+238mm, 3)Fork lower +68mm

