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Hangcha Official Website

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ISO45001

ISO045001:2018

ISO14001

ISO14001:2015

ISO9001

ISO9001:2015

HANGCHA trucks conform to the European Safety Requirements.



X SERIES

STAND-ON REACH TRUCK

With capacity of 2,000 to 3,000kg

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X SERIES

STAND-ON REACH TRUCK

The X series stand-on reach truck is a new-generation product newly developed by Hangcha. The truck body features a stamped design that combines refined styling with structural strength. Powered by an all-new permanent magnet (PM) + VCU control system, it delivers lower energy consumption, higher working efficiency and better active safety. A 5-inch interactive color touchscreen provides rich instrument information and intuitive, convenient operation.

Efficiency Safety Lower Energy



48V
VOLTAGE
WITH
PERMANENT MAGNET
SYNCHRONOUS DRIVE MOTOR

OPERATING COMFORT

- Optimized acceleration and deceleration curves of the traction and hydraulic motors enhance comfort in both travel and hydraulic operation.
- A right-side headrest cushion is standard, providing soft support for the operator's head and shoulders and improving ergonomic comfort.
- The independent 48V permanent-magnet electric power steering offers precise control and light operating effort; the optimized steering wheel position further improves operating comfort (mechanical valve model).



Grab handles on both sides:
Grab handles on both sides provide reliable support for the operator when getting on and off the truck, reducing boarding effort.



Multi-layer pedal mat:
The multi-layer pedal mat improves standing comfort and reduces fatigue during long working hours.

Electric Steering and Mini Lever:
Electric steering with a mini lever comes standard, requiring even lighter operating effort for greater comfort (solenoid valve version).

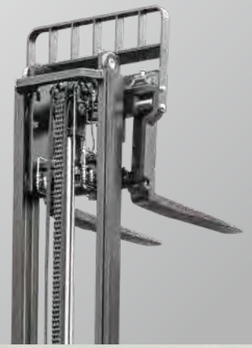
The product has been comprehensively optimized and upgraded from the outside in - styling, body structure and control system - while the model range, working efficiency, aisle adaptability, ergonomics and intelligent configuration have all been extended and improved. With heavy load capacity and high mast lifting, the truck offers strong load capability, a small aisle footprint, low energy consumption and high efficiency, making it ideal for high-performance applications such as narrow aisles, heavy loads, high capacities and high lifting heights.



DESIGNED FOR SAFETY

- **Intelligent suspension control system:** based on truck status, the VCU actively controls the lock cylinders to switch the suspension between flexible and rigid states, improving safety when turning.

- Automatic travel speed reduction at corners is standard: travel speed is automatically reduced when the truck turns, minimizing the risk of tipping and improving cornering stability and operating safety.



Load curve control function (optional):
The VCU matches the allowable lift height to the load weight, reduces speed in advance as the limit is approached and disables lifting once it is reached, improving the safety of high-level operation (solenold valve model).

Intelligent front-wheel hydraulic braking system: the VCU actively applies front-wheel hydraulic braking according to truck status, delivering shorter braking distances and greater safety in emergencies.

Intelligent anti-slip control system (optional):
the VCU controls the traction motor speed according to the speed of the front and rear wheels, reducing wheel slip on wet, slippery or oily floors and improving overall truck safety.



LI-ION TECHNOLOGY

HANGCHA provides Li-ion battery (LiFePO4) with 6 years or 12000 hours warranty.

6 YEARS WARRANTY

STABILITY AND RELIABILITY

- Optimized mast carriage structure with additional adjustable eccentric rollers: the clearance between the carriage rollers and the mast channel can be reduced by adjusting the eccentric rollers, minimizing mast play and improving mast operating stability.
- Improved machining accuracy of the inner and outer mast channels reduces the clearances of the main and side rollers, minimizing mast sway at high lift heights and enhancing overall truck stability.
- Optimized routing and fixing of the mast hydraulic lines reduces wear during movement and effectively improves the reliability of the hydraulic piping.





- The optimized structure and fixing method of the suspension lock-cylinder support provide higher strength to withstand alternating load shocks from the suspension system, meeting the force demands of complex working conditions.
- The central control unit (VCU) adopts a dual-circuit control architecture: the drive module and the logic module, as well as the high-voltage and low-voltage systems, are arranged independently for electrical isolation, improving control reliability.
- With the electric power steering system, the truck retains steering capability even if the power assistance fails, improving both safety and operational reliability (mechanical valve model).



The truck frame is formed by stamping, giving a highly integrated structure with excellent bending and impact resistance; the truck is solid and robust, effectively improving overall reliability.

EASY MAINTENANCE

VCU central controller:
All truck control software is integrated into the VCU central controller. Developed in-house, the software facilitates program debugging and function iteration, with fast response for after-sales fault diagnosis and program upgrades.

Easy-access diagnostic port:
The software debugging port is located under the grab handle; simply flip up the handle to connect for commissioning - quick and easy for program calibration and fault detection.





By-wire chassis, robot-ready:
A full by-wire chassis is realized through permanent-magnet electric steering, electromagnetic braking, electronically controlled solenoid valves and mini lever. Standardized by-wire interfaces are reserved, allowing quick conversion into a forklift robot simply by adding an accessory kit - expansion and modification made easy (solenoid valve version).



5-inch smart touchscreen:
A 5-inch smart color touchscreen provides rich operating information and convenient touch interaction; integrated fault analysis enables quick fault location and efficient maintenance.





90° rear door opening:
The rear door opens fully to 90°, giving clear visibility of internal components for direct inspection of parts status and convenient service and maintenance.

HIGH EFFICIENCY AND ENERGY SAVING



Mast reach speed increased by 100%:
The optimized reach control strategy increases mast reach and retract speed by 100% compared with the previous model, shortening each working cycle and significantly improving overall operating efficiency.

Permanent-magnet traction motor:
The permanent-magnet drive motor offers high energy conversion efficiency and low running losses, effectively reducing motor temperature rise and minimizing performance degradation at high temperatures, making the truck more energy efficient.

LED lighting:
LED headlights and a warning light are standard, providing high brightness with lower power consumption, meeting work lighting needs while enhancing overall energy efficiency.



Optimized truck structure:
The optimized truck layout reduces the aisle width required for stacking and lowers the mast lowered height, improving space accessibility and operating flexibility for higher working efficiency.



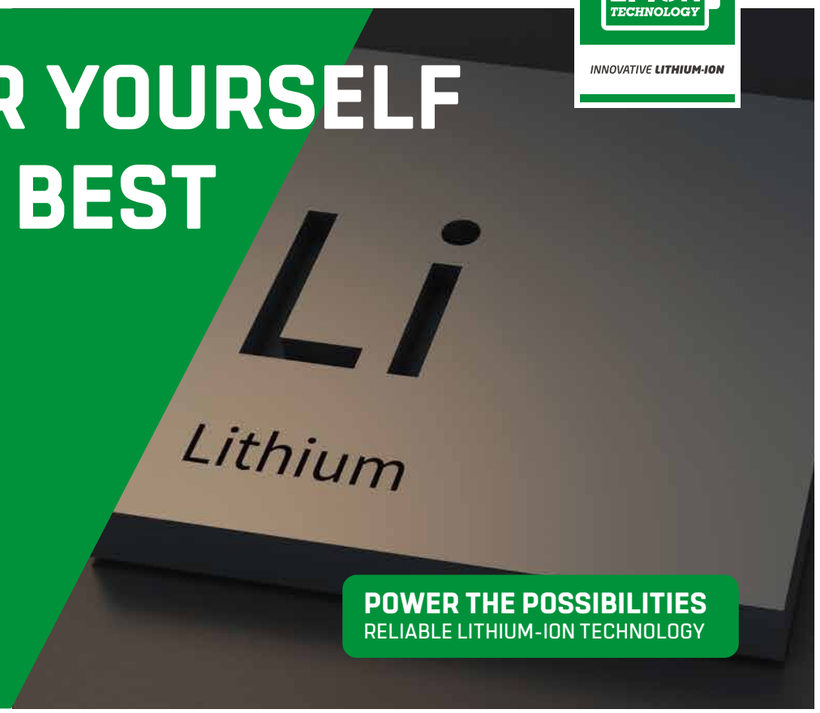
- Optimized hydraulic system control strategy: potentiometer signal acquisition for mast lifting/lowering and reach movements intelligently matches motor speed with valve opening, reducing unnecessary oil overflow and ineffective hydraulic losses for higher hydraulic system efficiency.
- A newly developed lowering speed-limit valve, together with the optimized hydraulic circuit, reduces lowering pressure and increases lowering speed by 13%, improving working efficiency.

LITHIUM POWERED

LI-ION TECHNOLOGY

INNOVATIVE LITHIUM-ION

EMPOWER YOURSELF WITH THE BEST



V48 LITHIUM ION

POWER THE POSSIBILITIES
RELIABLE LITHIUM-ION TECHNOLOGY

LITHIUM BATTERY ADVANTAGES

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

Cold area application
Li-Ion batteries maintain high performance at temperatures below freezing.

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

High safety and reliability
Intelligent battery management monitoring every important function, no emission of battery gasses.

Maintenance free
No topping up of water or checking acid levels.

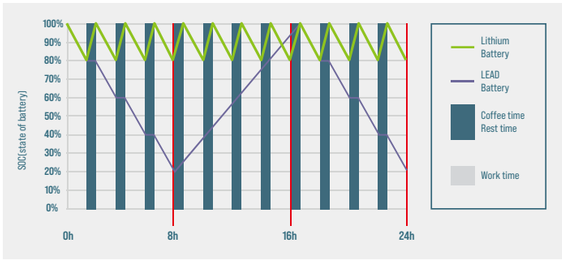
Opportunity charging
Full performance during several shifts thanks to effective interim charging.

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

FEATURES & BENEFITS
THE HANGCHA DIFFERENCE

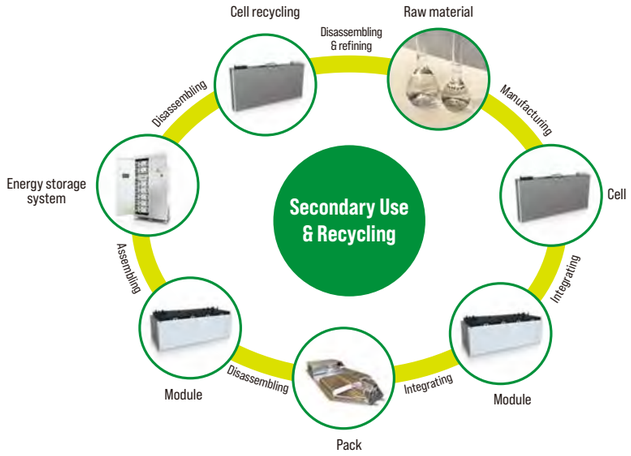
Efficiency

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℃-65℃
Discharge temperature:	-30℃-65℃
Storage environment temperature:	-30℃-65℃

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 × 85% (To avoid over-discharge damaging the battery, the forklift is equipped with low power protection (less than 15%)).
2. Charging time (h) = rated capacity of lithium battery (Ah) × 85% ÷ 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
CRC data validation

Features

Control	CQD20/25/30-XT11S-I Mechanical valve version	CQD20/25/30-XT11SD-I Solenoid valve version
48V permanent-magnet electric power steering (EPS)	●	/
48V permanent-magnet electric steering	/	●
Fork soft-landing cushioning when fully lowered (cylinder cushioning)(duplex mast)	●	●
Automatic travel speed reduction at corners	●	●
Regenerative braking (reverse, neutral and braking)	●	●
Operator presence sensing switch (stand-on sensing)	●	●
Mast top cushioning (fully lifted)	●	●
Mechanical valve	●	/
Solenoid valve	/	●
Mini lever	/	●
Height display	○	○
Height selection	○	○
Load curve control	/	○
Load weight display	○	○
One-key fork levelling (automatic horizontal fork alignment)	/	○
One-key centering (central sideshift)	/	○
Electronic accessories		
Interactive color touchscreen instrument	●	●
USB power socket	●	●
Horn	●	●
Warning light	●	●
Reverse buzzer	●	●
10 inch smart color touchscreen	○	○
Blue spot light; line projection light	○	○
Voice reverse buzzer	○	○
Audible and visual alarm light	○	○
Cigarette lighter	○	○
PIN code lock + card swipe	○	○
Fingerprint lock (standalone)	○	○
Safety		
Emergency power disconnect switch	●	●
Other		
Rubber drive wheel	●	●
Polyurethane wheels (load wheels + auxiliary wheel)	●	●
Permanent-magnet motors (travel + lifting + steering)	●	●
Lithium battery	●	●
Lithium battery 48V/456Ah (CATL)	○	○
Rear-view mirror	○	○
On-board charger	○	○

Note: ● Standard; ○ Optional; / Not available

Battery capacity

Battery capacity	On-board charger 48V/50A	CQD20-XT11S-I CQD20-XT11SD-I	CQD25-XT11S-I CQD25-XT11SD-I	CQD30-XT11S-I CQD30-XT11SD-I
280Ah (EVE), REMA plug	○	●	●	/
304Ah (EVE), REMA plug	○	○	○	●
456Ah (CATL), REMA plug	/	○	○	○
Note: ● Standard; ○ Optional; / Not available				