

HEDING LITHIUM ION BATTERY



ONE BATTERY FOR MULTISHIFT OPERATION



Anhui Heding: China's leading Lithium Battery Manufacturer

Heding Li Ion batteries are manufactured by Anhui Heding Electromechanical Equipment Co. Ltd. which is based in Hefei Economic Development Zone and is one of China's leading Lithium Ion battery manufacturer. Anhui was the first to have an automated Lithium Battery Module production line in the material handling industry.

Intelligent Module Line for Li Ion batteries



Standardised Pack Line



Production Workshop



Advantages of a Lithium Ion Battery

Fast Charging

A Li Ion battery charges 4 times faster than a lead acid battery, enabling opportunity charging. A fully charged 80V/404Ah Li Ion battery is usually enough for an 8-hour shift of normal use.

CHARGING TIME FOR A 80V, 400AH LI ION BATTERY	PERCENTAGE CHARGED
15 mins (during tea break)	12.5%
30 mins (during tea break)	25%
1 hour	50%
2 hours	100%

Longer Service Life

A Li Ion battery lasts 8-10 years, typically lasting two to three times longer than lead acid battery. It can also be repurposed to extend its life span by many before the need for recycling.

Lower Operating Costs

Lithium Ion batteries' electricity consumption is 20-30% lower than lead acid batteries.

Maintenance Free

Lithium Ion batteries require zero maintenance. They also don't require traditional maintenance like topping up with distilled water and don't require regular service.

Less Downtime

Lithium Ion batteries don't need to be swapped out and can be opportunity charge during operator breaks.

Environment Friendly

- Lithium is a cleaner energy source than lead acid.
- No acid mist, no leaks, no hydrogen gas emissions.
- Can be safely used even in the F&B, Pharmaceutical industries.

Superior Performance

A Li Ion battery performs well in temperatures between -20°C and 55°C.

Enhanced Safety

The inbuilt Battery Management System (BMS) monitors and estimates the various states for overcharging, over-discharging and overheating, ensuring that the batteries are safe for use in EVs. BMS also has provision for a SIM card in case you require remote monitoring, diagnosis, shutdown etc.

Sophisticated Battery Management System

Advantages of China's No.1 Battery Management System (BMS):

- Enhanced battery performance
- Greater safety
- Real-time monitoring and diagnostics



Key Features:

- Automatic power off
- Over-voltage protection
- Short circuit protection
- Interlocked design of charge & discharge
- Under-voltage & excess-temperature protection

Intelligent Li Ion Charger

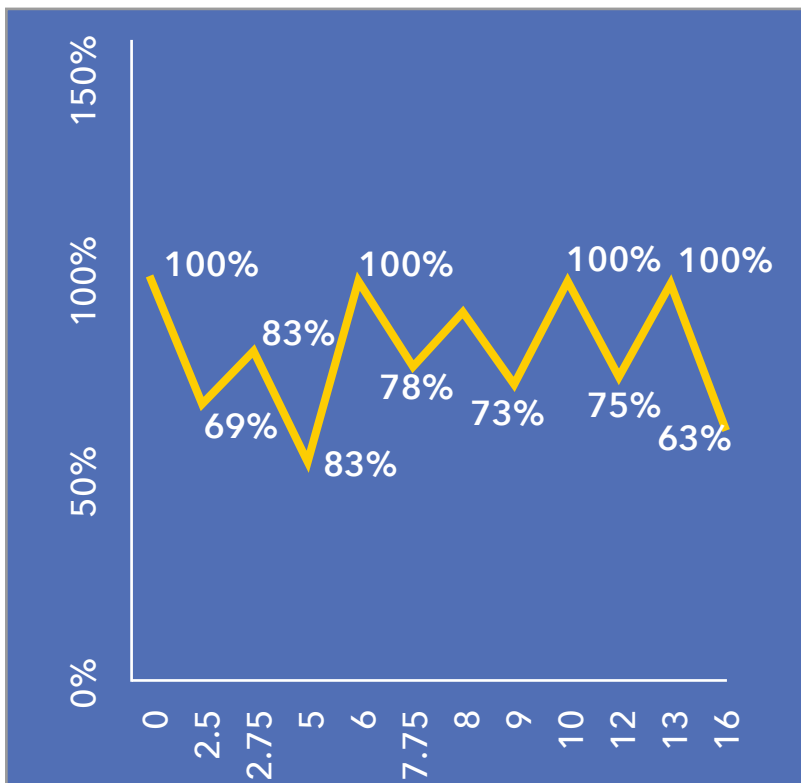
- Intelligent charger with active power factor correction, high efficiency, high power density & high reliability.
- The charger adopts air-cooled heat dissipation mode.
- Syntonic soft-switching technique reduces switching-loss & raises charging efficiency.
- Power input misconnect preventive method, over voltage protection and under-voltage warnings are used on the input side and over-current protection, short circuit protection, overheating protection methods are used on the output side.
- Automatic detection of whether the battery is connected reliably to the charger.
- The LCD screen displays real-time charging state and fault information.
- Charging process controlled automatically bases on the information from BMS.
- The max output current of the charger is 200A; the battery can be fully charged in 2 to 3 hours



MAIN CONFIGURATIONS			
CHARGER MODEL		D48V-200A-Li-EN	D80V-200A-Li-EN
Battery Voltage		48V	48V/80V
Size	mm	520×461×838	
Connecting Method		Three-Phase Four-Wire	
Charger Power	KVA	11	12
Upper Power Switch Model	A	32	63
Voltage Input Range	Vac	380±20%	
Input Current	A	<20	<40
Output Current	A	0~200	
Protect Level		IP20 (Indoor Use)	
Work Temperature	°C	0 to 45°C	
Power Connector		National Standard Charging Gun	

Example of a two-shift operation

TIME	DESCRIPTION	UTILIZED HOURS	CHARGING TIME	BATTERY CHARGE %
Before 08.00am	Before shift begins	0.00	0.00	100%
08.00am-10.30am	Working time	2.50	0.00	69%
10.30am-10.45am	Tea break		0.25	83%
10.45am-01.00pm	Working time	0.00	0.00	54%
01.00pm-02.00pm	Lunch break		1.00	100%
02.00pm-03.45pm	Working time	1.75	0.00	78%
03.45pm-04.00pm	Tea break		0.25	92%
04.00pm-05.30pm	Working time	1.50	0.00	73%
05.30pm-06.00pm	Shift change		0.50	100%
06.00pm-08.00pm	Working time	2.00	0.00	75%
08.00pm-09.00pm	Dinner break		1.00	100%
09.00pm-12.00am	Working time	3.00	0.00	63%



Rigorous Testing

Anhui carries out comprehensive and rigorous testing of every single battery in their factory.

IEC 62619 tests are certified by SGS and include:

- Charge & Discharge Capacity Test
- High & Low Temperature Test
- Vibration Test
- Performance & Safety Test
- Rainwater Test

Charge & Discharge Capacity Test

One of the key metrics for assessing the performance of Lithium Ion batteries is the charge and discharge capacity test.

Constant voltage charge and constant current discharge are common methods used for capacity testing.

The battery's capacity is determined by timing the battery's discharge under various loads.

The battery's real usage time and lifespan is ascertained with the aid of the capacity test.



Temperature Test



- Lithium Ion batteries undergo temperature testing to ensure battery safety and optimum performance.
- Lithium Ion batteries can withstand drastic changes in temperatures:
 - Charging temp range: 0°C to 60°C
 - Discharging temp range: - 30°C to 60°C
- The functional safety requirement is evaluated according to EN ISO 13849-1.
- Tests performed:
 - External short circuit
 - Thermal abuse
 - Overcharge test
 - Forced discharge test
 - Overheating control

Vibration Test

This test evaluates the durability and reliability of components to ensure that the parts, assemblies and structures exposed to vibration do not shorten service life significantly or cause fatal structural defects due to fatigue cracking or hardening of materials.

During Anhui's Vibration Test, cells and batteries are firmly secured to the platform of the vibration machine without distorting the cells in such a manner as to faithfully transmit the vibration. The vibration is a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz, and is traversed in 15 minutes. This cycle is repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell.



Performance & Safety Test



- Li Ion battery is tested at various temperatures
- Safety testing also assesses the battery's performance and capacity to react to unusual circumstances
- Safety tests include checking for overcharging, over discharging, short circuit and high temperatures

Rainwater & Sovereign Water Test

Ingress Protection IP54 tests determine how well the Lithium Ion battery withstands water exposure:

- Dust protection: Ingress of dust is not entirely prevented, but is not in great quantity and does not interfere with the safe operation of the equipment.
- Water splashing against the enclosure from any direction has no harmful effect, utilizing either:
 - An oscillating fixture, test is conducted for 10 minutes
 - A spray nozzle with no shield, test is conducted (without shield) for a minimum of 5 minutes
 - Battery is not submerged in water



Lithium VS Lead Acid Battery Comparison







FEATURES	LITHIUM BATTERY	LEAD ACID BATTERY	BATTERY COMPARISON
Maintenance Free	Yes	No	Lead acid batteries need distilled water top up after every recharge. Battery lasts an average of 1500 cycles if maintained well. Without maintenance the lead acid battery's life drops to 600 to 700 cycles at best. Li Ion batteries require no maintenance, and should still have 75% of their original capacity after 10,000 hours.
Warm-up Time	Yes	No	Lead-acid batteries have a warm-up period. Need minimum 2 hours to cool down electrolyte after charging.
Effect of very low & high temperatures	No	Yes	At 0°C, Li Ion battery offers 83% capacity power while Lead Acid battery offers 60% capacity power.
Effect of very low & high temperatures	No	Yes	At 0°C, Li Ion battery offers 83% capacity power while Lead Acid battery offers 60% capacity power.
Operational Cost	Low Cost	High Cost	Lead Acid batteries incur higher electricity bills than Li Ion.
Warranty Period	5 Yrs or 10,000 Hrs	2 Yrs + 2 Yrs pro rata or 1,500 cycles	The maximum warranty for Lead Acid battery is 4 years: 24 months FOC & 24 months pro rata.
Charge Time	2-3 Hrs	8-10 Hrs	You can charge the battery during breaks without it affecting battery performance or longevity.
Charge & Discharge Efficiency	95%	70%	For the same capacity of battery, a Lead Acid battery consumes more commercial power, resulting in higher electricity bills.
Special Charging Room	No	Yes	For a two-shift operation, Lead Acid batteries require a separate charging room, increasing real estate costs. Li Ion batteries can be charged in a normal indoor environment, require no special rooms, need very little space for a charger and save on costly real estate.

Easily upgrade to a Lithium Battery

Simply let us know the capacity, size, weight and plug type of your Lead Acid battery and we will recommend the right Lithium battery for you. Battery replacement takes just 30 minutes along with installation of a new charger and meter. We even dispose of your lead acid battery safely and providing all necessary environmental documents.

Versatile Applications

The Heding Li Ion battery can be used in a variety of lead-acid powered machines to increase their productivity and reduce maintenance and operational costs.

FORKLIFTS	PALLET STACKERS	POWER PALLET TRUCKS
		
REACH TRUCKS	TOW TRUCKS	ARTICULATED FORKLIFTS
		

Repurposing & Recycling Lithium Batteries

Environmental Responsibility

Li Ion batteries contain valuable materials like lithium, cobalt etc. which can be recovered and reintegrated into the supply chain, reducing pollution and conserving natural resources.

Economic Benefits: The value of recovered materials can generate revenue, offsetting disposal costs.

Compliance: Regulations increasingly mandate proper disposal and recycling of the batteries.

Repurposing Lithium

Batteries have a lifespan of approximately 20 years.

Repurposing for second-life applications extends their useful lifespan and contributes to sustainability efforts.

Instead of being discarded, batteries can find new life in energy storage systems, reducing electronic waste and minimizing the environmental impact associated with battery disposal.

Second-life use can reduce overall lifecycle emissions (CO₂e) by a considerable amount.

Repurposing Applications

Stationary Energy Storage:

- Off-grid solar power: Repurposed batteries can store energy generated by solar panels for later use, reducing reliance on the grid.
- Backup power for critical building systems: Repurposed batteries act as a reliable power source during outages, ensuring security systems, alarms and other essentials remain operational.

Mobile Applications:

- Electric golf carts and utility vehicles: Lower capacity batteries from forklifts can still power these smaller vehicles.
- Portable power supply for tools or lighting: Repurposed battery packs can become mobile energy sources for construction sites, outdoor events and emergency power needs.

Recycling Lithium

Hala can arrange recycling of Lithium batteries with UAE-based companies and can provide the appropriate certificates.

Connect with us

DUBAI

PO Box 410516
Industrial Area 5, Warehouse 8
West of Tasjeel, Al Qusais
+971 4 284 7878

@ sales@halaheavy.com

www.halaheavy.com

SHARJAH

PO Box 34337
Industrial Area 10
+971 6 534 3325

ABU DHABI

Office #107, Block B
Confident Business Center
Musaffah Industrial Area M-9
+971 56 801 5114