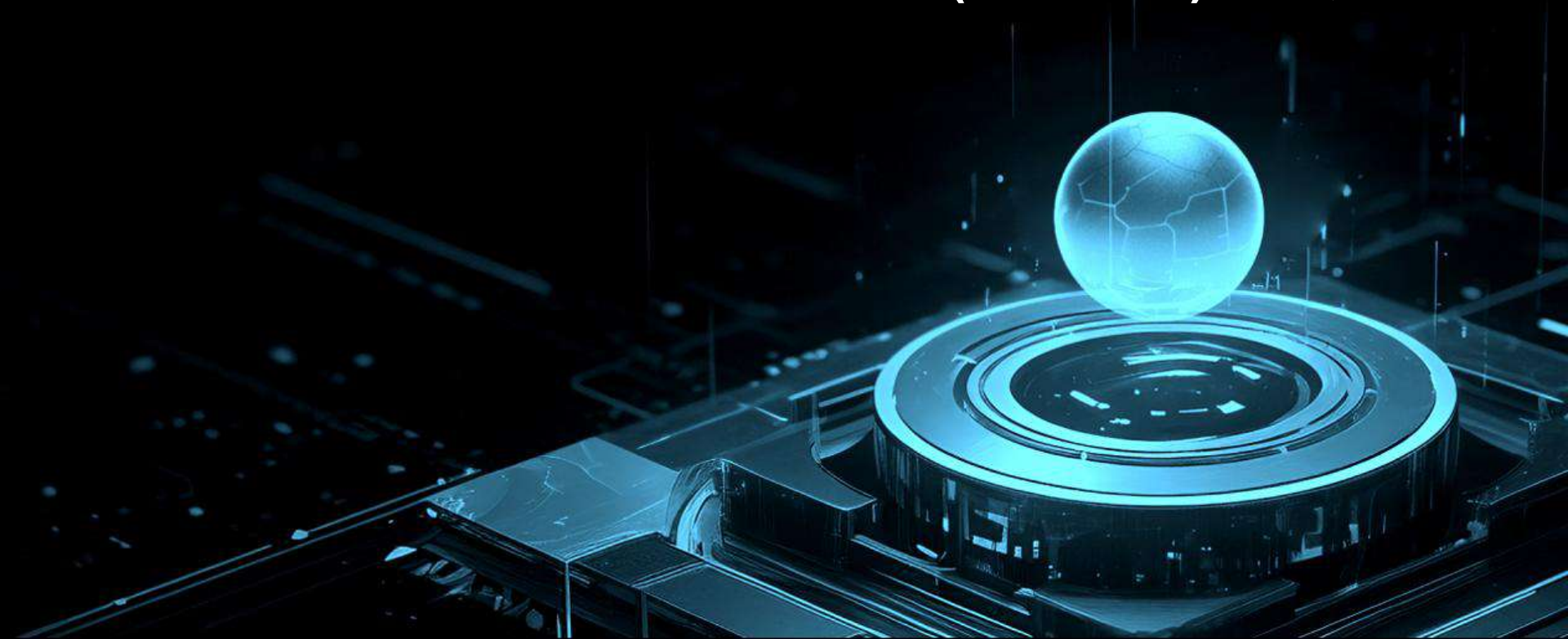




EWAY ENERGY TECHNOLOGY (WUHAN) CO.,LTD



ENERGY STORAGE SOLUTION

PRODUCT INTRODUCTION

03



LITHIUM BATTERY

The prototype of the battery was invented at the end of the 18th century, and it has been developed for more than 200 years. Lithium-ion batteries are one of the latest batteries born in the process of battery development.

- **Lithium Battery:** formerly known as Lithium Primary Battery, containing pure lithium metal, disposable and non-rechargeable, it is often used as the abbreviation for Lithium-ion Battery.
- **Lithium-ion Battery:** The full name is Lithium-ion Polymer Battery, rechargeable lithium-ion batteries that use colloidal or solid polymers instead of liquid organic solvents are safer and will not explode, and can be molded into various shapes of battery cells, making them the current mainstream form of battery.

Lead Acid



Lithium

COMPARISON

Type	Voltage	Cycle Times	Advantage Disadvantage
Lead-acid Battery	3.7	200~300	<ul style="list-style-type: none">• Cheap Cost.• Heavy weight and big Volumn.• Voltage reach up to 2V• Large self-discharge
Lithium Battery	3.2	1000~3500	<ul style="list-style-type: none">• Expensive Cost• Light and Small• Fast Charge• No self-discharge• More cycle times• Wireless Charge support

LITHIUM BATTERY



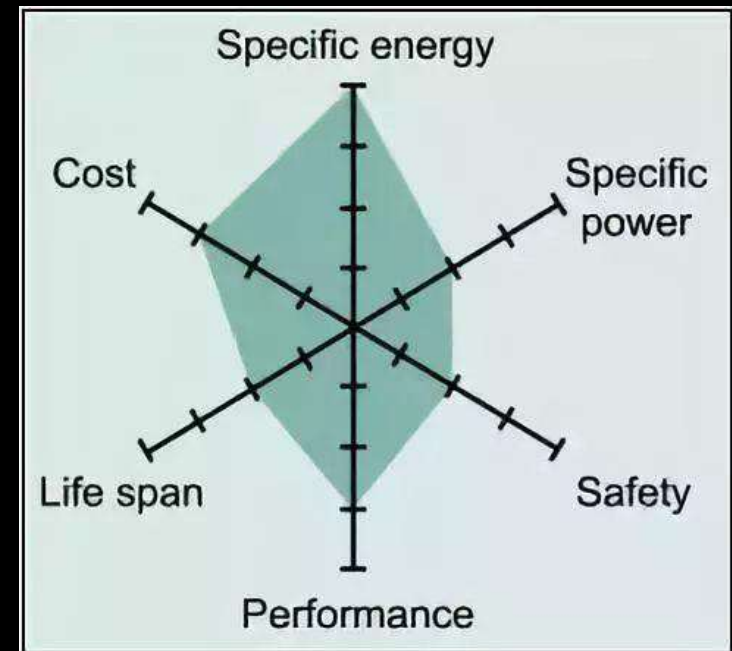
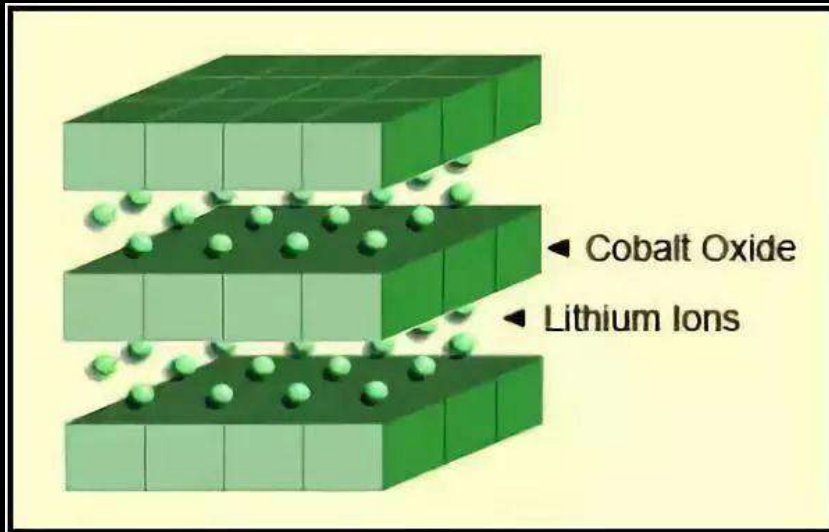
Cylindrical lithium-ion battery



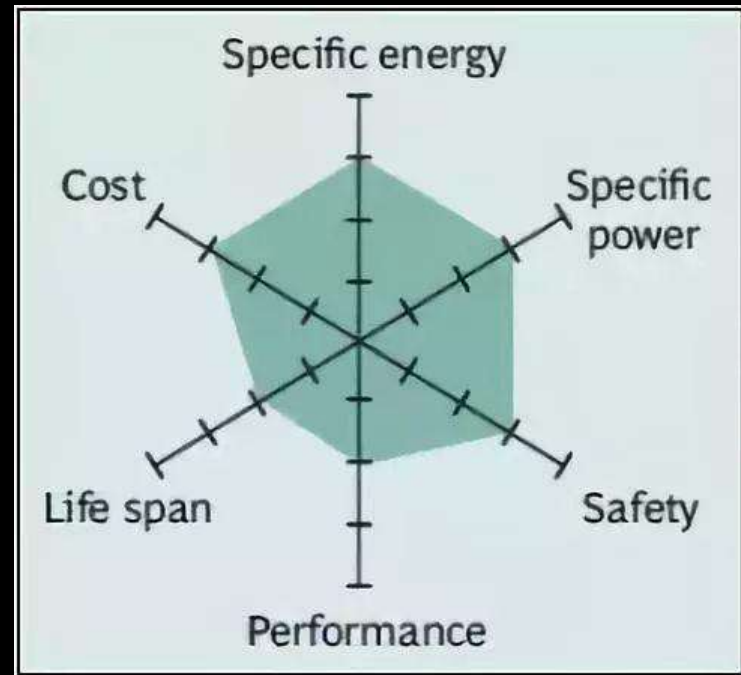
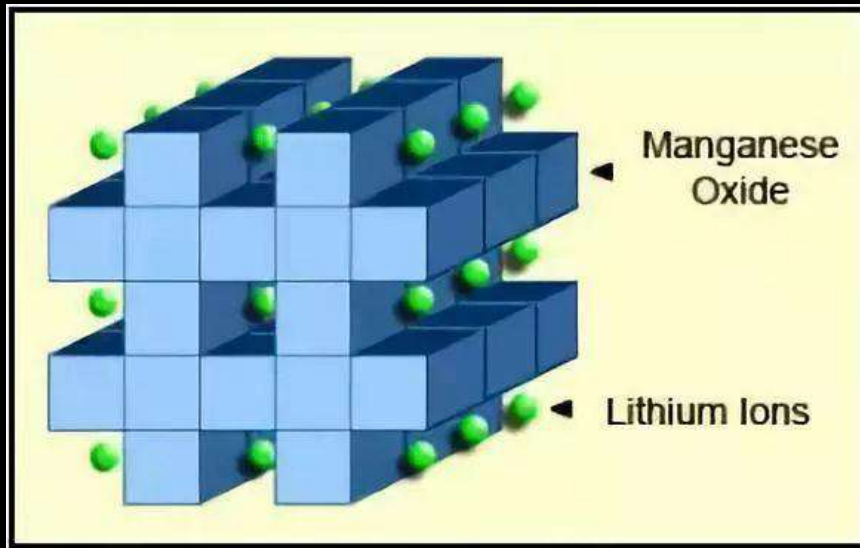
Laminated lithium-ion battery

- ◆ Cobalt-based lithium-ion batteries (LiCoO_2)
- ◆ Manganese lithium-ion battery (LiMn_2O_4)
- ◆ **Iron phosphate lithium-ion battery (LiFePO_4)**
- ◆ Ternary lithium-ion battery ($\text{Li}(\text{NiCoMn})\text{O}_2$)

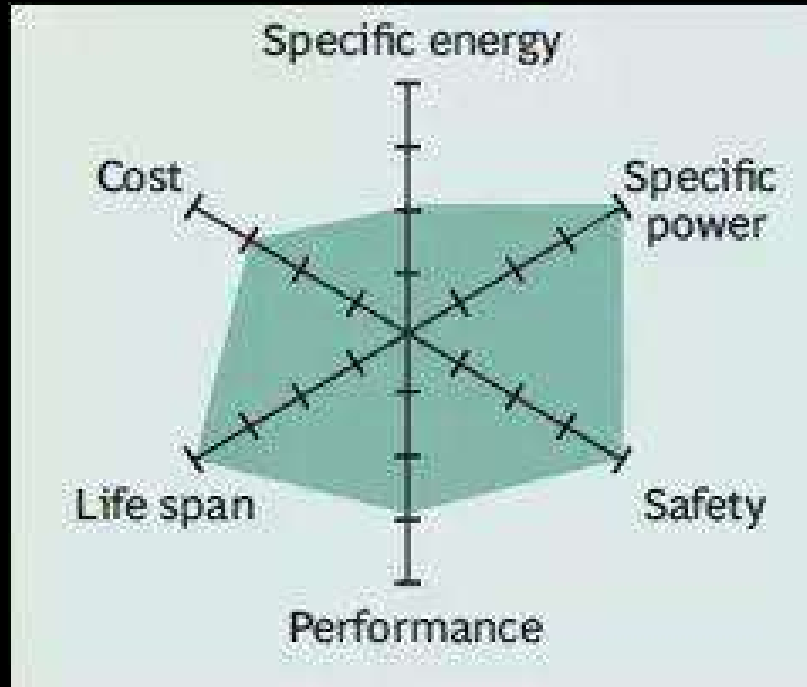
Cobalt-based lithium-ion batteries (LiCoO₂)



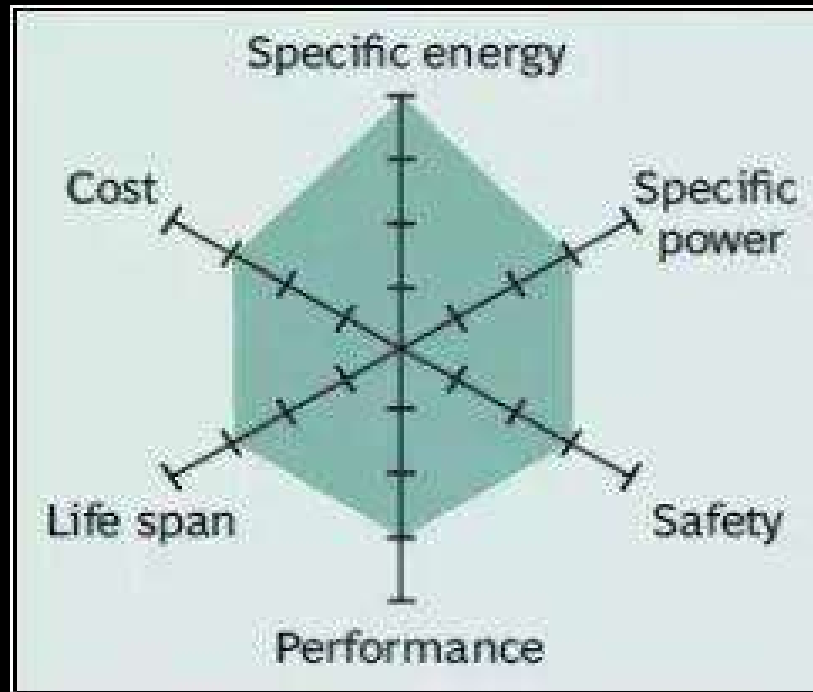
Manganese lithium-ion battery (LiMn_2O_4)



Iron phosphate lithium-ion battery (LiFePO₄)



Ternary lithium-ion battery (Li(NiCoMn)O₂)



COMPARISON

Type	Voltage	Cycle Times	Advantage Disadvantage
LiCoO ₂	3.7	500~1000	<ul style="list-style-type: none">• Widely used as the standard lithium-ion battery• Expensive, not used in cars
LiMn ₂ O ₄	3.7	300~700	<ul style="list-style-type: none">• High safety• Can charge and discharge quickly
LiFePO ₄	3.2	2000~3500	<ul style="list-style-type: none">• Cheap• Long cycle life• lower voltage than other lithium-ion batteries
Li(NiCoMn)O ₂	3.6	1500~2000	<ul style="list-style-type: none">• Voltage is relatively high• Cycle life is long• Most for EV battery

产业机械

电动叉车



电动推车



电动工具



电梯



不间断电源装置

通信用中继基站



数据中心



便携设备领域

IoT传感器



可穿戴设备



尖端科技领域

人造卫星



机器人



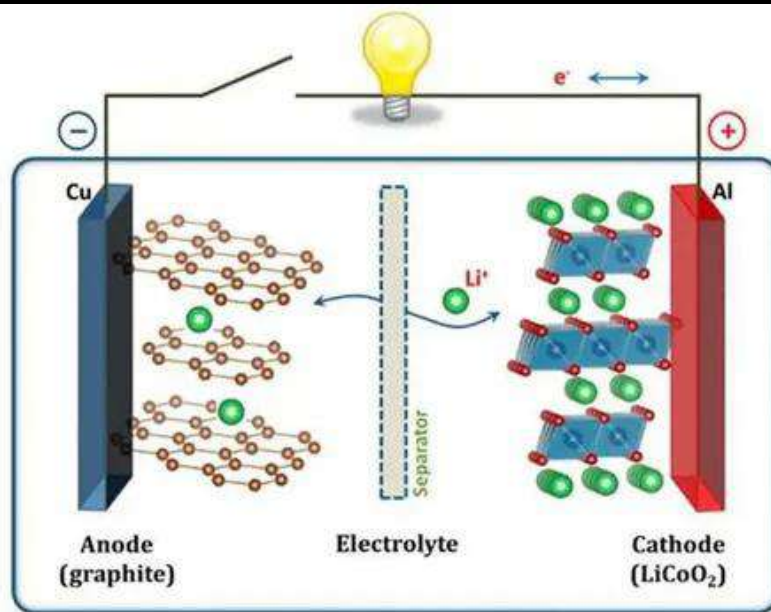
潜艇



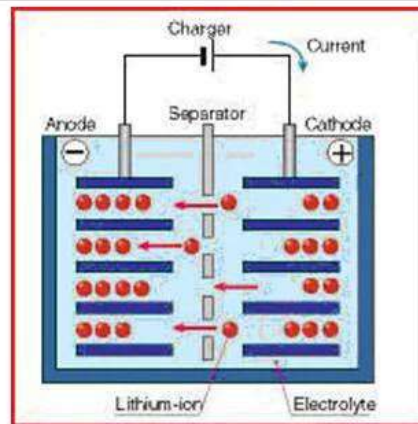
LiFePO₄ BATTERY



LiFePo₄ Battery: The full name is Iron Phosphate Lithium-ion Battery, the positive electrode uses lithium iron phosphate. The advantage is that even if the internal heat is generated, the structure is difficult to be damaged, and it is highly safe. In addition, it uses iron as the raw material, and the manufacturing cost is lower than that of manganese batteries. However, the voltage is lower than other lithium-ion batteries.

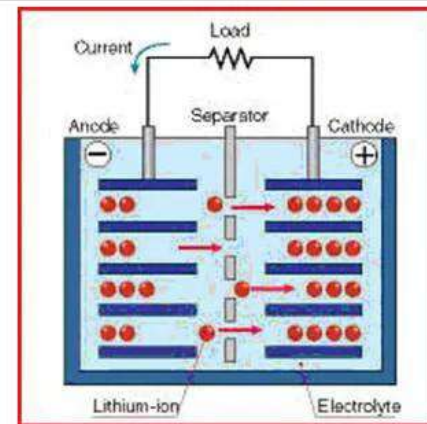


Charging



When the battery is charged, the lithium ions in the cathode material (lithium compound) migrate via a separator to between the layers of carbon material that form the anode, and a charging current flow.

Discharging



When the battery is discharged, the lithium ions in the carbon material that form the anode migrate via a separator to the cathode material (lithium compound), and a discharging current flows.



Lithium Iron Phosphate batteries are

- ◆ **The most environmentally friendly**
- ◆ **The longest lifespan,**
- ◆ **The highest safety, and**
- ◆ **The highest discharge rate**

in all lithium-ion battery packs currently available.



LiFePO₄ Battery Pack

- Battery Cell
- BMS
- Battery Shell



LiFePO4 Battery Pack

01

Battery Cell



02

BMS

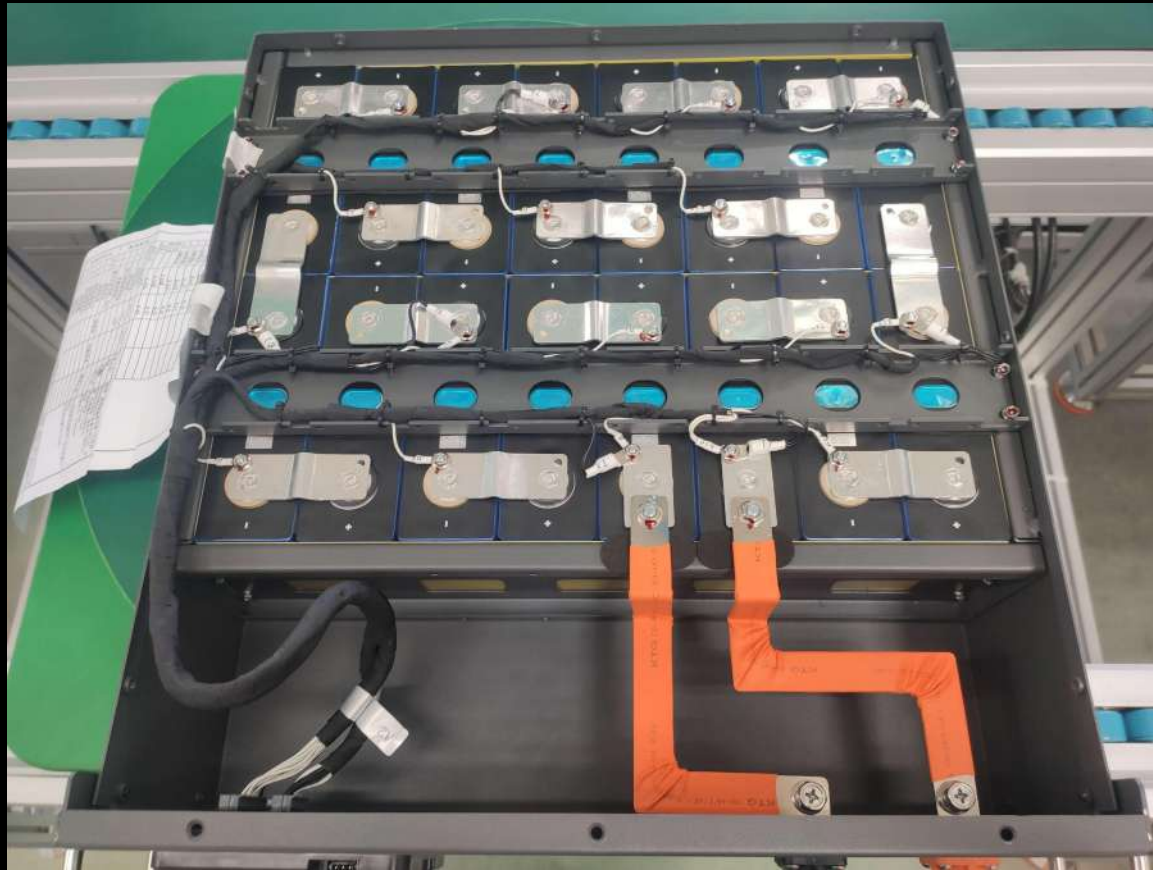


03

Battery Shell



LiFePO4 Battery Pack



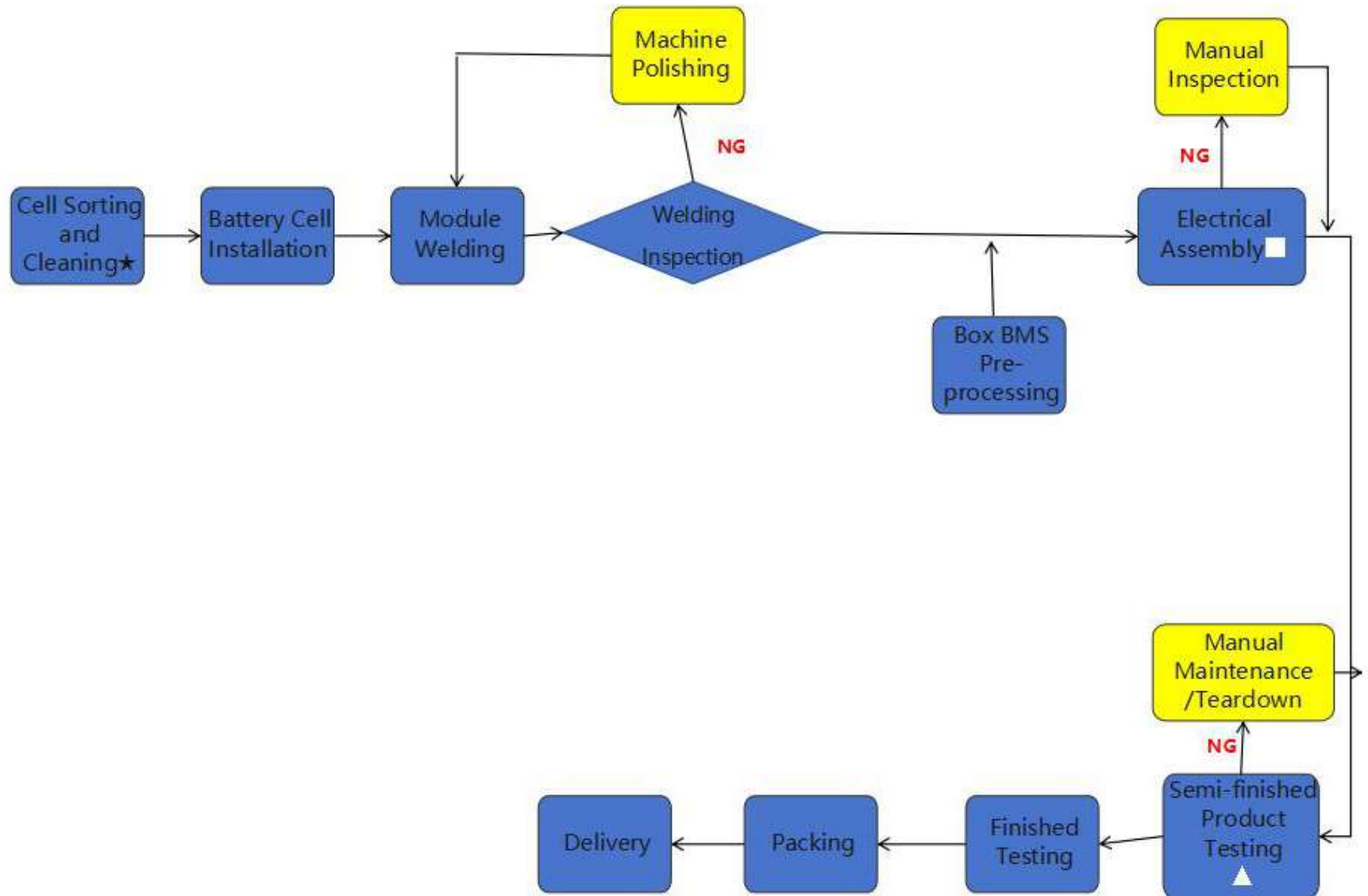
Rack-mounted

BATTERY PACK ASSEMBLY PROCESS

01



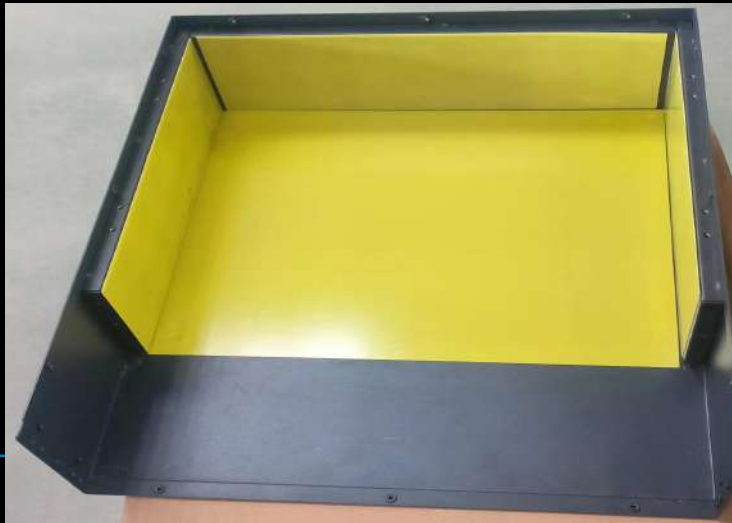
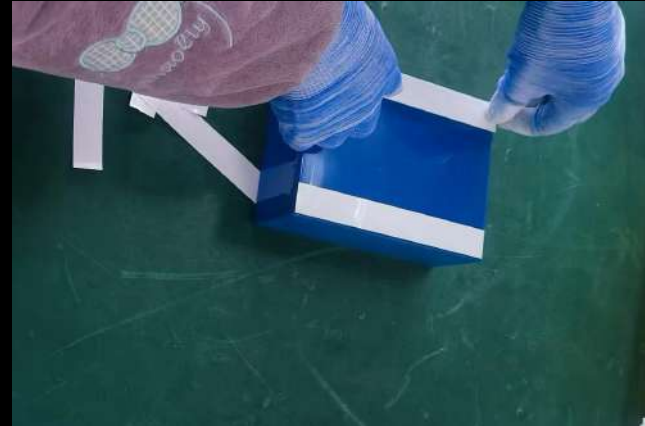
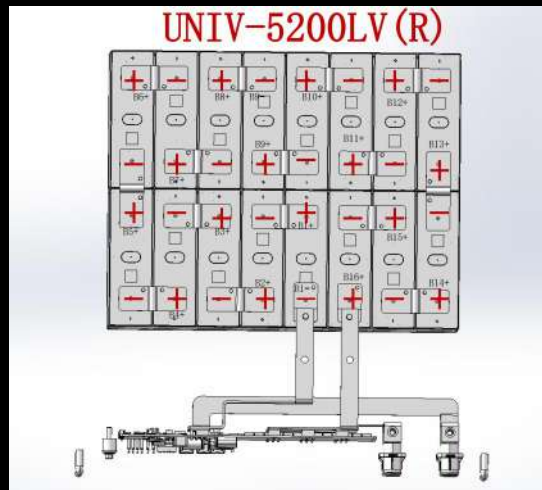
Assembly Process Flow Chart



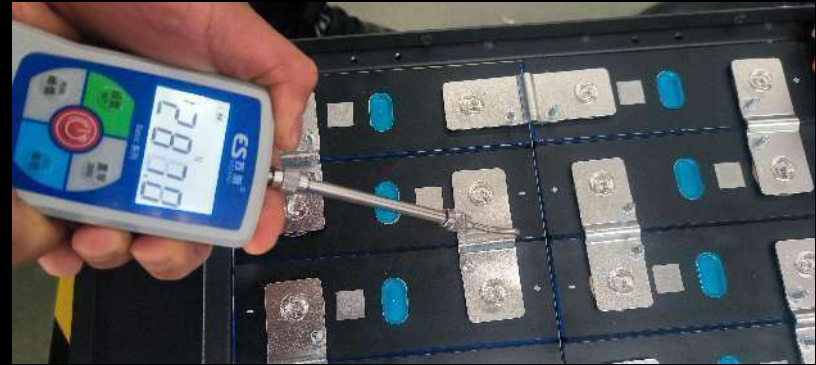
Cell Sorting and Cleaning



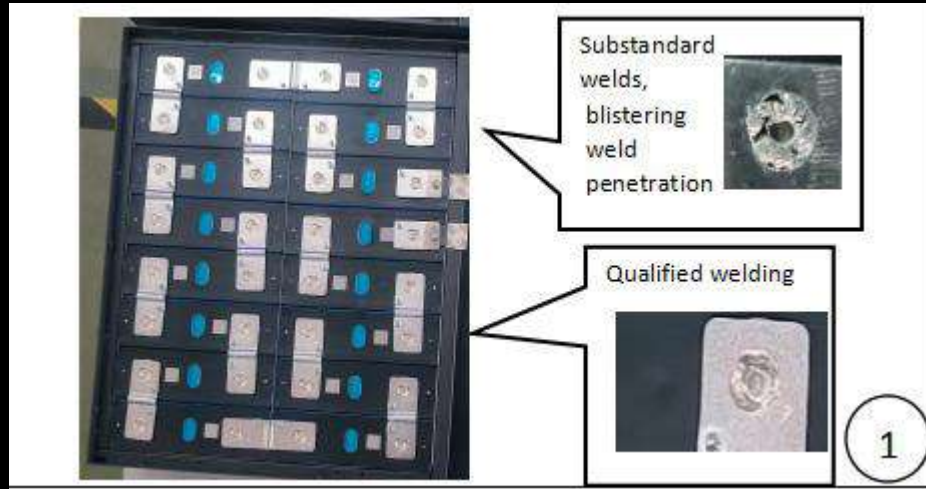
Battery Cell Installation



Module Welding



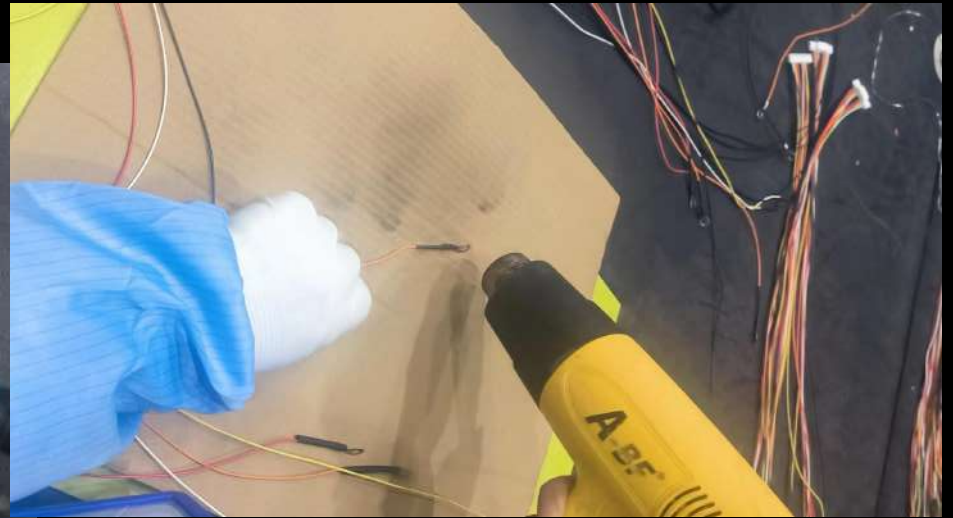
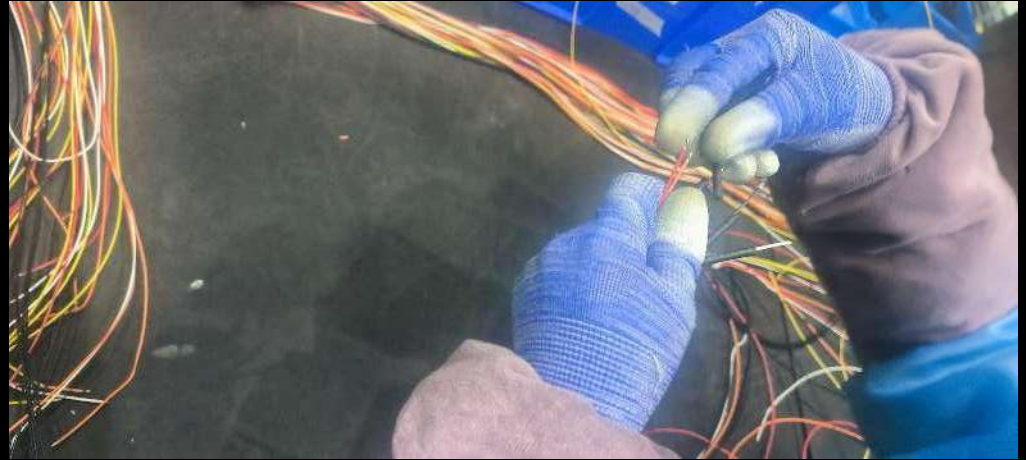
Battery Module Welding Inspection



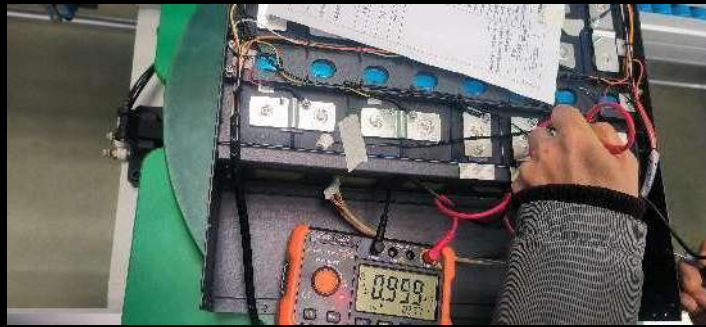
Box BMS Pre-Processing



Electrical Assembly 1

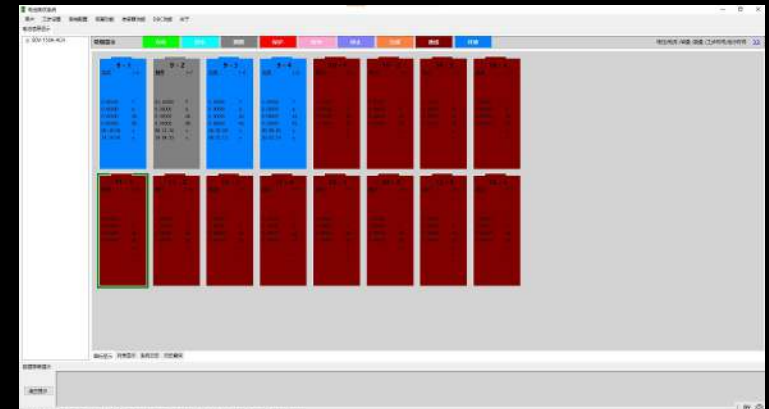


Electrical Assembly 2



Semi-finished product testing

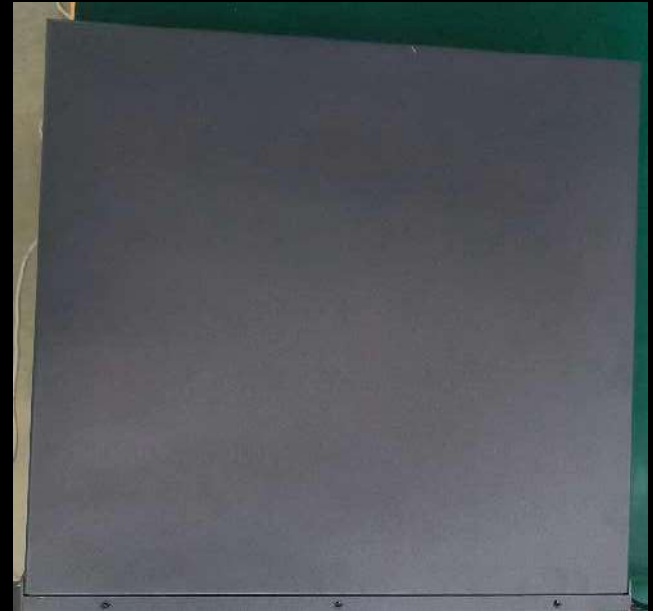
1. Open the switch of the charge-discharge capacity test cabinet and the computer software;
2. Set the charging and discharging parameters:
 - 1) Set aside for 1min
 - 2) At room temperature, 58.4V, 30A constant current and constant voltage charging to SOC 100% or cut-off current to 5.1A;
 - 3) Set aside for 30min
 - 4) At room temperature, 30A constant current discharge to voltage to 43.2V;
 - 5) Set aside for 30min
 - 6) At room temperature, 58.4V, 30A constant current and constant voltage charge to 40% of the battery SOC;
 - 7) Set aside for 30min;



Finished Product Testing



- Step1: .Turn on the switch to the ON position, the battery pack has no alarm or the fault light flashes;
- 2.Turn off the switch to the OFF state and inspect the appearance of the battery pack, such as no missing screws, whether the terminal locking is tight, the switch is in the OFF state, and the appearance is free of scratches, paint peeling, deformation, etc; The gap in the middle of the box is less than 0.5mm, and the installation position of the light beads, dial switch, and communication port is good. After no problems are found, wipe the appearance of the box with alcohol;
- 3.The grounding screw is not missing;



- Steps2: Wipe the surface of the box with a dust-free cloth and alcohol to remove dirt and dirt from the surface of the box;

PRODUCTION



Testings



Packing



PACKING AND LOADING



Thank you

Eway Energy Technology Co.,Ltd

