



# **IPC ENGINEERING, ELECTRIC, ELECTRONICS AND TRADE LIMITED COMPANY**

***Lithium Battery***

# Lithium Battery

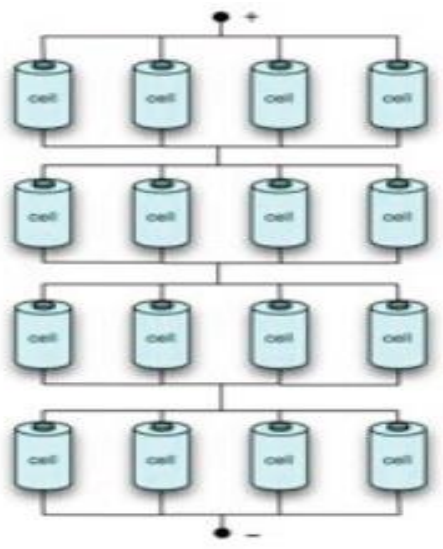
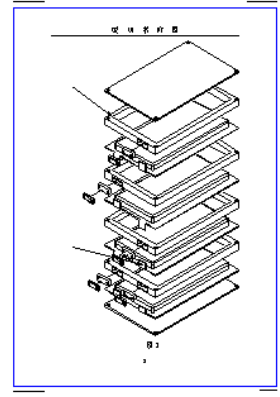
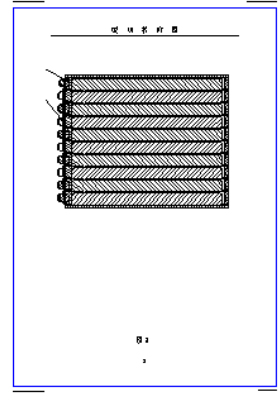
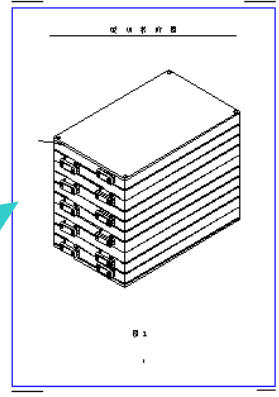
## Lithium Technical advantages

- Using chemical battery system with Li-ion phosphate material as the positive, and with carbon material as the negative; using aluminum-plastic composite film as the packaging material for superior safety protection.
- Optimizing the technology, fully utilizing the performance of Li-ion phosphate material, apply technology to remedy the rate and high temperature performance of Li-ion phosphate material;
- Superior high temperature performance that can withstand 60 degree celcius operating temperature for 10 years without comprising capacity
- Using exclusive functional electrolyte of Li-ion phosphate to raise the battery rate and high temperature performance;
- Using creative manufacturing technology, and plate group laminating, the innovative technology greatly improves the efficiency of production and increases the production stability
- Manufactured with automated equipment

# Lithium Battery

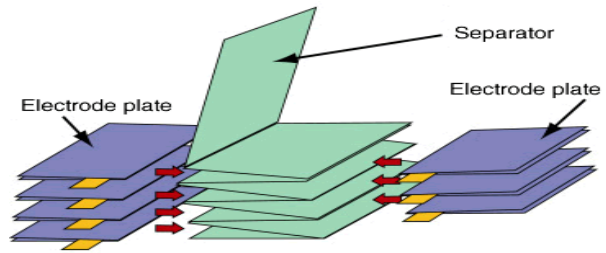
## Lithium Technical advantages

**Modular products with single cell of 10Ah and 50Ah with lithium iron phosphate polymer battery, combine in parallel to increase capacity and in serial to increase voltage.**



# Lithium Battery

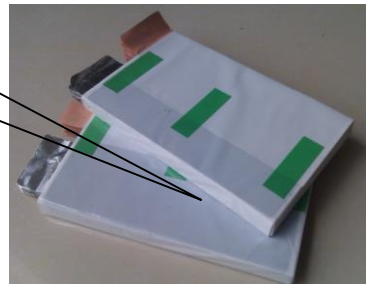
## Lithium Assembly Structure



Assembly method		square		circular
		Metal case plastic case	Aluminum plastic film	
rolling	Single cell	☆	☆	☆
	Multi cell	☆	☆	
laminating	Bag type	☆	☆	
	Z type	☆	☆	

Use chemical power system with Li-ion phosphate as the positive and carbon as the negative; use aluminum plastic film as the sealing material; technically use plate group lamination with automatic and semi-automatic equipments, combine modular type products in parallel connection to increase capacity and in serial connection to increase voltage.

Semi finished cell

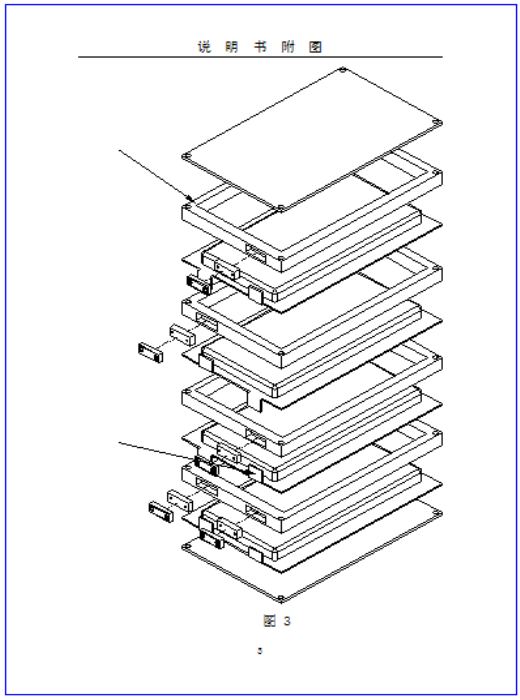
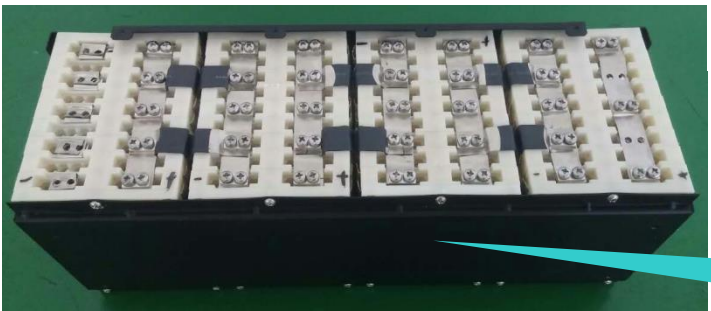
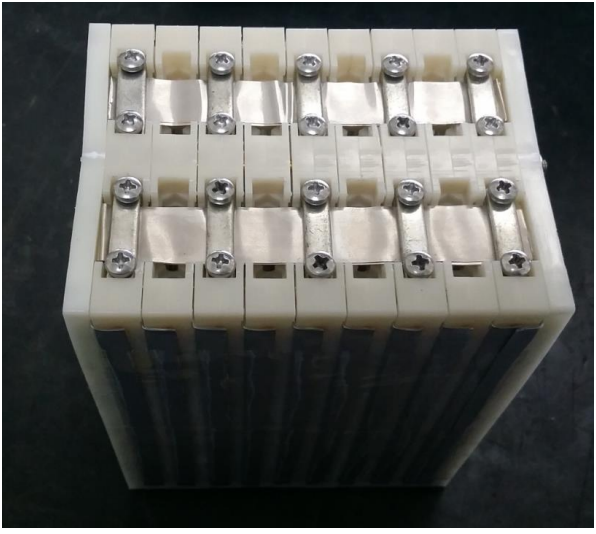


50Ah, 10Ah finished cell



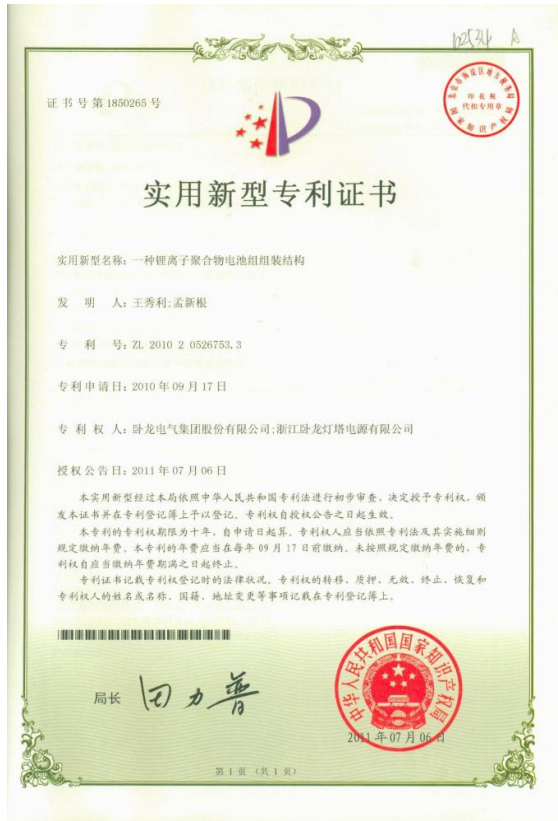
# Lithium Battery

## Lithium Assembly Structure



Pictures of combined cells

Efficiently solved the bad mechanical performance problem of soft package batteries



# Lithium Battery

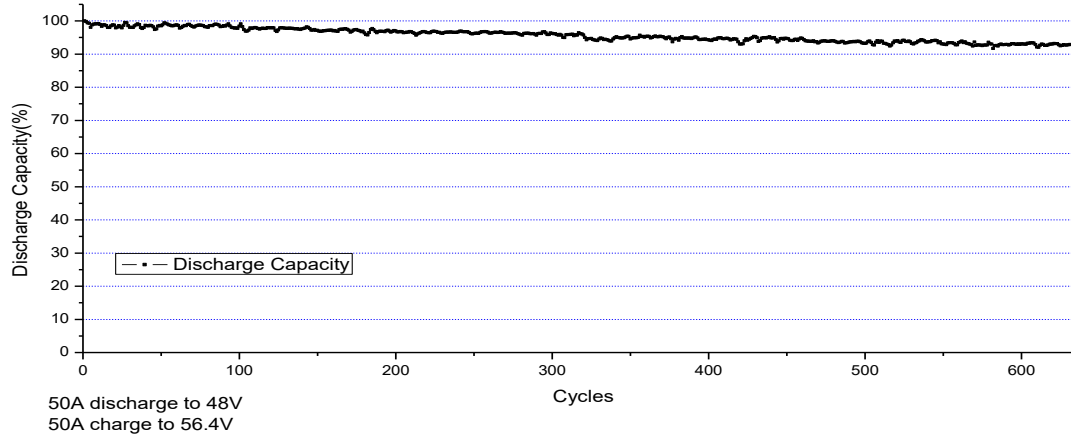
## Lithium Endurance Performance

2700 cycles and 89% capacity remaining (room temperature with 3C charge and discharge, 100%DOD)



# Lithium Battery

## Product Performance



测试方法：循环流程编辑

步骤		电流	电压	备注
1	CC	10A (0.2C)	56.4V	
2	DC	10A (0.2C)	40V	确认初始容量
3	CC	50A (1C)	56.4V	
4	DC	50A (1C)	48V	
5	跳转步骤3			循环100次
6	按照1-2步骤确认一次容量			
7	进行3-5步循环。			
常温25度1C循环达到2500次或容量低于70%，测试结束。高温45度1C循环达到1500次或容量低于70%，测试结束。				

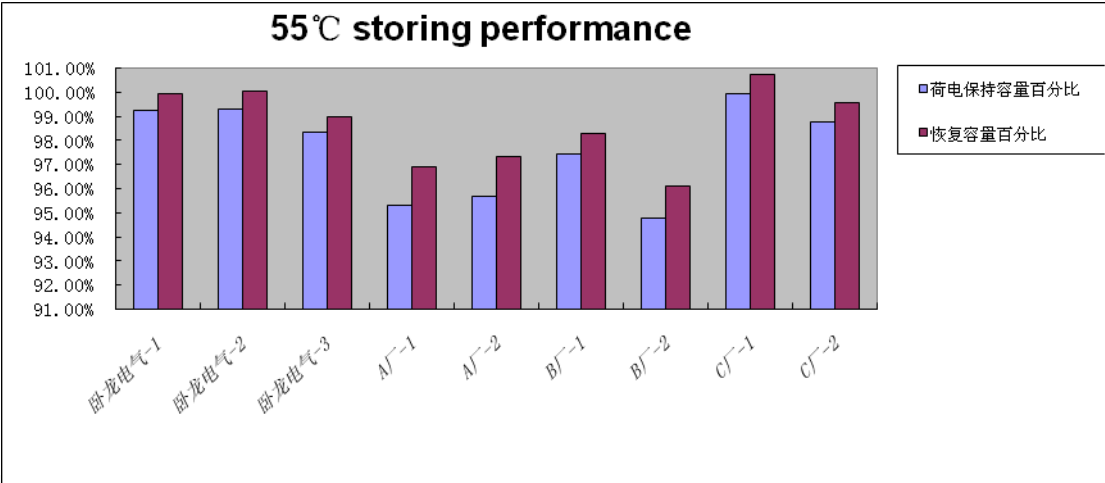
Testing method according to requirement. Of which testing under 45 Degree C with 90% DOD, after 600 cycles, battery capacity remains above 93%

# Lithium Battery

## Product Performance

电池编号	储存前I3放电容量 (mAh)	满电55°C储存7天后I3荷电保持容量 (mAh)	满电55°C储存7天后I3恢复容量 (mAh)	荷电保持容量百分比	恢复容量百分比
卧龙电气-1	11308	11222	11300	99.24%	99.93%
卧龙电气-2	11355	11276	11360	99.30%	100.04%
卧龙电气-3	11297	11105	11180	98.30%	98.96%
A厂-1	10010	9538	9696	95.28%	96.86%
A厂-2	9507	9093	9250	95.65%	97.30%
B厂-1	12090	11778	11880	97.42%	98.26%
B厂-2	11976	11349	11508	94.76%	96.09%
C厂-1	12145	12136	12234	99.93%	100.73%
C厂-2	12077	11927	12025	98.76%	99.57%

High temperature storing





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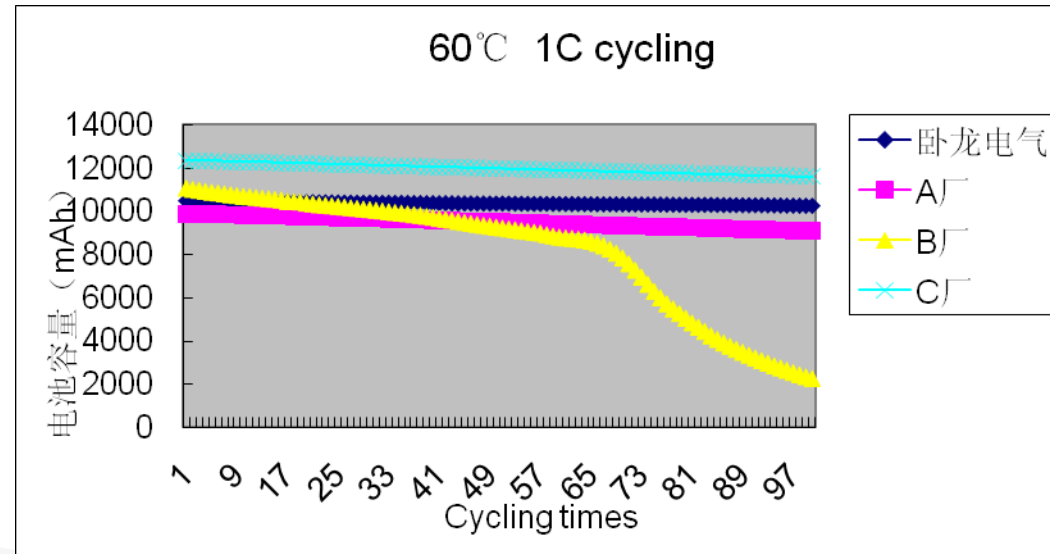
## Product Performance

Manufacturer	Wolong Electric	A	B	C
1st discharge capacity (mAh)	10482	9891	11066	12325
The 100 time discharge capacity (mAh)	10241	9099	2236	11605
Remaining capacity percentage after 100 cycles	97.70%	91.99%	20.21%	94.16%

High temperature cycle performance

\* Test condition :

60°C constant temperature tank  
 10A (1C) constant current and constant voltage charge (voltage limit 3.65V, terminate current 300mA)  
 10A (1C) constant current discharge, terminate voltage 2.0V



**Thank you for attention!**



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