



江苏海基新能源股份有限公司

Hi-gee NCM/AG BATTERY DELIVERY SPECIFICATIONS

三元动力电池规格书

PRESENTED TO (呈送) : _____

MODEL NO. (产品型号) : 2714897 50Ah 3.65V _____

DATE (制作日期) : _____

Customer Part No. (客户物料编码) : _____

Specification Approved (规格书审批项)	Prepared By(编制)	
	Drawn By(绘图)	
	Checked By(审核)	
	Approved By(批准)	
Customer Approved (客户审批项)	Checked By(审核)	
	Approved By(批准)	
	Please sign and return one copy to us. 请签名盖章确认后回传我司.	

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1. Scope (适用范围)

本规格书适用于江苏海基新能源股份有限公司生产的三元动力电池。

2. (型号): 2714897-50Ah**3. External Appearance (外观)**

The cell / battery shall be free from cracks, scars, breakage, rust, discoloration, leakage and deformation. 电池/电池组外观无破裂、划痕、变形、生锈、污迹、电解液泄漏等不良现象。

4. Ratings (规定参数)

The data involving the nominal voltage and the approximate weight of the battery pack.

此资料包括电池的额定电压和大约重量。

序号 NO.	项目 Item	常用参数 General Parameter	备注 Remark
1	型号 (Model)	2714897	(单体) single
2	单体外壳材质 Casing material for single cell	铝 Aluminium	
3	标称容量 (1C) Standard capacity (1C)	50Ah	
4	最小容量 (1C) Mininum Capacity (1C)	49Ah	
5	额定电压 Rated voltage	3.65V	
6	最大充电电压 Max.Charge voltage	4.2V	
7	放电截至电压 Cut-off voltage	2.8V	
8	标准充电&放电 Standard charge & discharge	50A	1C
9	充电时间 charging Time	About 1hour	1C
10	持续放电电流 Max Continuous discharge current	50A	1C
11	瞬间放电电流 Peak discharge current	200A	4C (15 秒) 15s
12	厚度 (thick)	27±0.5 mm	
13	宽度 (wide)	148±0.5 mm	
14	高度 (height)	97.5±0.5 mm	
14	电池重量 (Approx.) Weight(Approx,including case)	0.86±0.02kg	
15	内阻 (Max, at 1000Hz.) Impedance (Max, at 1000Hz.)	0.65±0.05m Ω	
16	充电方法(CC/CV) Charge method (CC/CV)	标准 Standard	CC 1C 4.2V 截止 4.2V cut off
			CV 4.2V 0.05C 截止 0.05C cut off
17	工作温度 Operate temperature	充电 Charge	0℃～45℃
		放电 discharge	-30℃～50℃
		贮存 storage	-20℃～45℃

5. Performance (电池性能)

Unless otherwise stated, tests should be done within one month of delivery under the following conditions:

除非其它规定, 测试应在到货之日起 1 个月内进行, 并且符合以下测试条件:

Relative humidity (相对湿度): 15%~90% RH.

Ambient Temperature (环境温度) (Ta): $25 \pm 2^\circ\text{C}$.

***Notes: Standard charge / discharge condition (注意: 标准充电/放电条件)

Charge (充电): 50A (1C) to 4.2V unless the current come up to 2.5A;

Discharge (放电): 50A (1C) to 2.8V/cell.

***The batteries must be standard discharged before charging (电池充电前必须先放电)。

***Battery test vide infra (电池测试参见下文):

5.1 电化学性能 (electrochemistry performance)

序号 No.	项目 Project	标准 Standard	测试方法 Testing method
1	常温放电性能 Discharge performance in normal temperature	放电容量/标称容量 $\times 100\%$ (A) $1C \geq 100\%$ (B) $2C \geq 98\%$ Discharge capacity / nominal capacity $\times 100\%$ (A) $1C \geq 100\%$ (B) $2C \geq 98\%$	在 1 标准大气压, 环境温度 $25^\circ\text{C} \pm 2^\circ\text{C}$, 相对湿度为 15%~90% 的条件下, 电池 1C 标准充电后 (以下若没有特别说明, 均在此条件下放置, 皆按此充电方式), 搁置 10min, 分别以 1C、2C 进行放电至下限电压 2.8V, 循环三次, 当有一次达到标准, 即达到标准要求 (下同)。 Charge with 1C standard charge in the condition of temperature $25^\circ\text{C} \pm 2^\circ\text{C}$, relative humidity 15% ~ 90% (if there is no especial statement, the charging way is same as this), rest for 10min, separated discharge with 1C、2C to cut-off voltage 2.8V, cycles for three times, One cycle capacity arrive standard, that's to say it is qualified.(The below as the same)
2	常温荷电保持能力 Charging keep ability in normal temperature	剩余容量 $\geq$ 标称容量 $\times 97\%$ Remain capacity $\geq$ nominal capacity $\times 97\%$	电池标准充电后, 在 $25^\circ\text{C} \pm 2^\circ\text{C}$ 贮存 28 天, 储存期满后, 以 1C 放电至终止电压 2.8V, 测量电池容量。 After standard charged, rest it in $25^\circ\text{C} \pm 2^\circ\text{C}$ for 28days. Then discharge with 1C to 2.8V, testing the battery capacity.
3	循环寿命 Cycle life	容量 $\geq$ 标称容量 $\times 80\%$ Capacity $\geq$ nominal capacity $\times 80\%$	1C 标准充电后, 以 1C 放电至终止电压 2.8V 搁置 30min, 以此模式循环 2500 次。 After 1C standard charged, discharge with 1C to 2.8V. Rest for 30min, cycles for 2500 times.
4	不同温度下的放电性能 Discharge performance in different temperature	搁置后放电容量/标称容量 $\times 100\%$ Discharge capacity / Rated capacity $\times 100\%$ (A) $60^\circ\text{C} \geq 98\%$; (B) $0^\circ\text{C} \geq 95\%$; (C) $-10^\circ\text{C} \geq 85\%$; (D) $-20^\circ\text{C} \geq 75\%$ 电池不冒烟、不爆炸、不起火 No exploding, No fire	电池标准充电后, 分别在 60°C 、 0°C 、 -10°C 、 -20°C 恒温条件下搁置 24h, 以 1C 测量电池对应的终止容量 (60°C 下放电终止电压为 2.8V, 其它温度下为 2.5V), 最后在室温状态下搁置 2h。 After standard charged, separated rest for 24hrs under 60°C 、 0°C 、 -10°C 、 -20°C , test the last capacity with 1C (Cut-off discharge voltage under 60°C is 2.8V, when others is 2.5V). Then rest 2h in the normal temperature.
5	贮存性能 Storage performance	贮存 12 个月的电池容量保持率 $\geq 80\%$ Capacity can be kept $\geq 90\%$	电池标准充电后, 开路放置 12 个月, 以 1C 放电至 2.8V, 测量电池的剩余容量; 可循环三次, 当有一次达到标准, 即达到标准要求。

		Storage for 12 months.	After standard charged , rest for 12 months , discharge with 1C to 2.8V , test the remain capacity; 1C/1C test the recover capacity, cycle for 3 times , One cycle capacity arrive standard, that's to say it is qualified.
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5.2 安全性能(Safe performance)

序号 No.	项目 Project	标准 Standard	测试方法 Testing method
1	过充性能 Over-charge performance	不爆炸、不起火 No exploding, No fire	电池标准充电后，保证电池状态正常（下同），以 1C 电流充电至 6.3V,然后转恒压充电至截至电流 0.05C 时终止, 观察电池的温度及外观变化。 After standard charged , Battery status should be ensure the normal (the same below),charge with 1C to 6.3V, then change to charge with constant voltage and stop charge until the current is 0.05C, check the temperature and appearance of the battery.
2	过放性能 Over-discharge performance	不起火、不爆炸、不漏液 No exploding, No fire, No weeping	电池标准充电后，以 1C 进行放电 90min，搁置 90min。 After standard charged , discharge with 1C for 90min, rest for 90min.
3	短路性能 Short-circuit performance	不爆炸、不起火 No exploding, No fire	电池标准充电后，置于防爆玻璃罩中直接短路其正负极 10 分钟（线路总电阻不大于 5mΩ），观察电池的温度及外观变化。 After standard charged , keep the battery pack in explosion-proof box and connect positive and negative to short-circuit for 10min(the total impedance should not be over than 5mΩ) , check the temperature and appearance of the battery.
4	其它安全性能 Other safety performance	满足 GB/T 31485-2015 标准要求 Meet the requirement of GB/T 31485-2015	测试方法参照 GB/T 31485-2015 For test method details, please refer to GB/T 31485-2015

6. Configurations, Dimensions And Markings (外形尺寸)

Please refer to the related drawing.

电池外形尺寸请参见附图。

7. Warranty (保证)

The quality guarantee period for our products is one year.

我们对产品的保质期限为 1 年。

8. Cautions (使用注意事项)

- Reverse charging is not acceptable.
应将电池极性正确连接，不可反接。
- Charge before use, use the correct charger.
使用之前请充电，请使用专用充电器。
- Do not charge / discharge with more than the specified current.
请不要超过规格要求电流对电池/电池组进行充放电。
- Do not short circuit the cell / battery.
请不要将电池/电池组短路。
- Do not incinerate or mutilate the cell/battery.
请不要将电池/电池组投入火中或试图拆开。
- Do not solder directly to the cell / battery.
请不要在电池/电池组上直接焊锡。

7. The life expectancy may be reduced if the cell / battery is subjected to adverse conditions, like extreme temperature, deep cycling, excessive overcharge /over-discharge.
如果电池/电池组在极限条件下使用, 可能减少寿命:
如: 极限温度, 深度循环, 过充电或过放电。
8. Store the cell / battery in a cool dry place.
电池/电池组应储存在阴凉干燥处。
9. For charging methods please reference to HIGEE technical handbook.
充电方法请参考我们的技术手册。
10. When find battery power down during use, please switch off the device to avoid over discharge.
电池使用时发现功率下降, 请关闭用电器开关以防止电池过放。
11. well-ventilated place out of direct sunlight.
电池使用后, 如果电池发热, 再次充电前, 请在通风环境中冷却。
12. When the battery is hot, please do not touch it and handle it, until it has cooled down.
如果电池发烫, 请勿触摸, 直至冷却。
13. Do not mix HIGEE batteries with other battery brands or batteries of a different chemistry.
请不要将 HIGEE 电池与其他品牌的电池或者不同种类的电池混用。
15. Do not mix new batteries in use with semi-used batteries, battery may be over-discharged.
请不要将新旧电池混用, 可能会导致过放电。
16. Do not attempt to take batteries apart or subject them to pressure or impact. Heat may be generated or fire may result.
请不要尝试分离、挤压、撞击电池, 电池会发热或起火。
17. Keep away from children. If swallowed, contact a physician at once.
放在儿童拿不到的地方, 如果发现吞食, 请立即联系医生。

Specifications of single cell (电池规格)

Dimensions 外形尺寸(mm)



Nominal Voltage 标称电压: 3.65V

Rated Capacity 额定容量: 50Ah

Minimal Capacity 最小容量: 49Ah

Standard Charge 标准充电: 50A

Rapid Charge 快速充电: 75A

Continuous Discharge 连续放电: 50A

Final Discharge Voltage 放电终止压: 2.8V

Weight 重量: 860±20g

Service Life 循环寿命: >2500cycles

Internal Resistance 内阻: 0.65±0.05mΩ

