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# Lithium-ion Battery

## Product Specification

### 可充电锂离子电池

### 产品说明书

Elite Model 项目代码: 51.2V105AH

Cell Model 电芯型号: 3.2V105AH (LiFePO4)

Prepared by 订制	Approved by Sales 市场部批准	Approved by R&D 研发部批准	Approved by QA 品质部批准
张小健			

Customer Approval 客户批准	Signature 签字	Date 日期
	Customer Name 客户名称	
	Company Stamp 客户盖章	

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## Amendment records 变更记录

Revision 版本号	Description 变更描述	Date 日期	Prepared By 拟制	Approval By 批准
A0	Initial release 新发行	2022/05/24	张小健	

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## 1. Scope 适用范围

This document describes the Product Specification of the Lithium-ion rechargeable battery supplied by Jiangsu D King Power Co., Ltd

本规格书描述的是由江苏帝腾新能源有限公司（以下简称“DK POWER”）生产制造的可充电式锂离子电池产品。

## 2. Model 产品型号

51.2V/105AH

## 3. Specification 产品规格

No.	Item	Specification
01	Pack configuration 产品结构	16S1P
02	Cell Model 电芯型号	EVE/3.2V/105Ah
03	Charge Voltage 充电电压	58.4V
04	Discharge cut-off Voltage 放电截止电压	40V
05	Nominal Voltage 标称电压	51.2V(3.2V/Cell)
06	Minimum Capacity 最小容量	105AH @ 0.5C discharge
07	Nominal Capacity 标称容量	105AH @ 0.5C discharge
08	Nominal Energy 标称能量	5376Wh @ 0.5C discharge
09	Nominal Charge Current 标准充电电流	30A
10	Maximum charging current 最大充电电流	50A
11	Standard discharge current 标准放电电流	105A
12	Maximum discharge current 持续放电电流	200A (1min)
13	Maximum instantaneous discharge current 最大瞬间放电电流	300A (3mS)
14	Standard Charge 标准充电	1C constant current to 54.0V, CV to taper current≤0.05C 1C恒流充电至54.0V，然后以54.0V恒压充电，至充电电流降至0.05C为
15	Standard Discharge 标准放电	1C constant current to 38V 1C恒流放电，至电压降至38V为止

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16	Pack Weight 成品重量	About 47.0 kg (Total package with charger and display is about 50 kg)	
17	Shipment Voltage 出货电压	51.2V~52.8V	
18	IP standard 防水等级	IP67	
19	Operating Temperature 工作温度	Charge 充电	0°C ~55°C: standard charging method 0°C ~55°C : 标准充电方式
		Discharge 放电	-20°C ~60°C
20	Storage Temperature 储存温度	-20 ~ 25°C, Less than 12 months -20 ~ 45°C, Less than 3 months; -20 ~ 60°C, less than 1 month -20 ~ 25°C, 小于一年的储存 -20 ~ 45°C, 小于3个月的储存 -20 ~ 60°C, 小于1个月的储存	

## 4. Product Performance 产品性能

### 4.1 Electrical characteristics

No.	Item 项目	Test method 测试方法	Criteria 标准
1	Capacity 容量	The capacity shall be measured at a discharge current of 1C and a cut-off voltage of 40V after standard charging. 标准充电后，以1C的电流放电至40V截止电压所放出的容量	≥105AH
2	Cycle Life 循环寿命	After standard charging, discharge the battery at 1C to 40V. Repeated the above test cycle till retained capacity is 80% of initial capacity. 标准充电后，以1C电流放电到40V；持续重复以上测试，直到保持容量为初始容量的80%	Cycles ≥4000times 循环次数≥4000次

### 4.2 Mechanical and Environmental Test 环境适应性

No.	Item 项目	Test method 测试方法	Criteria 标准
1	Vibration 振动	After standard charging, fixed the battery to vibration table and subjected to vibration cycling that the frequency is to be varied from 7HZ to 200HZ ,then return to 7HZ , the excursion of the vibration is 0.8mm. The battery shall be vibrated for 3 hrs. 满充电后的电芯在三个相互垂直的方向按振幅0.8mm的正弦波进行振动，频率从7HZ增加到200HZ，再降回7HZ，往复振动3小时	No leak, no smoke, no fire, no explosion 无漏液、不冒烟、不起火、不爆炸

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2	Drop 自由跌落	After standard charging, the battery is to be dropped from a height of 1 meter onto concrete board, dropped once in the positive and negative directions of three mutually perpendicular X, Y, Z axes. 将满充电电池从1米高处自由跌落到水泥地板上, 从X, Y, Z正负方向每个方向自由跌落一次	No leak, no smoke, no fire, no explosion 无漏液、不冒烟、不起火、不爆炸
3	Heating 热冲击	After standard charging, put battery in the baking oven and start to rise the temperature to 130°C, remain for 10minutes at that temperature. 将电池满充电后, 放置于热箱中, 温度以 (5±2°C)/min的速率升至130°C±2°C并保温10min	No fire, no explosion 不起火、不爆炸

#### 4.3 Safety test 安全性能

No.	Item 项目	Test method 测试方法	Criteria 标准
1	Short 短路	After standard charging, the battery shall be subjected to a short-circuit condition with a wire of resistance $80 \pm 20\text{m}\Omega$ , until it has reached a completely discharged state of less than 0.2V and the battery case temperature has returned to $\pm 10^\circ\text{C}$ of ambient temperature. 标准充电后, 将正负极用总电阻 $80 \pm 20\text{m}\Omega$ 的电阻短路, 至电池电压低于0.2V, 或者电池表面温度恢复至室温 $\pm 10^\circ\text{C}$ 时, 终止测试	No fire, no explosion 不起火、不爆炸

## 5. Storage and Others 储存及其他

### 5.1 Long Time Storage 长时间储存

If the pack is stored for a long time, the pack's storage voltage should be 51.2V~52.8V and the pack should be stored in a condition as section 5.2;

如果本产品需要长期储存, 电池电压需要保持在 51.2V~52.8V, 且储存环境需要符合 5.2 要求; 建议最长 3 个月做一次充放电。

### 5.2 Standard Environmental Test Condition 标准测试环境

Unless otherwise specified, all tests stated in this Product Specification are conducted at below condition:

Temperature:  $25 \pm 3^\circ\text{C}$ ; Humidity:  $65 \pm 20\%$  RH;

除非另有说明, 该规格书中涉及的所有测试都应在以下环境条件下进行:

温度:  $25 \pm 3^\circ\text{C}$ ; 湿度:  $65 \pm 20\%$  RH;

### 5.3 Others 其他

Any matters that this specification does not cover must be agreed between customer and DK POWER

任何该规格书中没有涉及的事项都应在客户和江苏帝腾新能源之间协商确定

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## 6. Battery Drawing 成品图纸

Unit 单位: mm

Size 尺寸: 510\*380\*230±3mm



## 7. Function introduction 功能介绍

This product is golf car battery, with off/on switch to control the battery output, with RS485 communication, and can be connected to the external display. It is with Bluetooth function, Bluetooth APP can be connected to observe the battery status and information.

**此产品为高尔夫球车款电池，具有弱电开关功能可控制电池输出，具有 RS485 通讯功能，并可外接显示屏。且具蓝牙功能，可连接蓝牙 APP 观察电池状态和信息。**

## 8.Others 其它事项:

### 5.1 Prohibition of Disassembly

严禁拆卸电芯

5.1.1 Never disassemble cells. The disassembling may generate internal short circuit in the cell, which may cause swelling, firing, or other problems.

在任何情况下不得拆卸电芯。拆卸电芯可能会导致内部短路，进而引起鼓气、着火及其它问题。

5.1.2 Electrolyte is harmful. LIP battery should not have liquid from electrolyte flowing, but in case the

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electrolyte come into contact with the skin, or eyes, physicians shall flush the electrolyte immediately with fresh water and medical advice is to be sought.

电解液有害。聚合物锂电池理论上不存在流动的电解液，但万一有电解液泄漏而接触到皮肤、眼睛或身体其它部位，应立即用清水冲洗电解液并就医。

5.2 Never incinerate nor dispose the cells in fire. These may cause firing of the cells, which is very dangerous and is prohibited.

在任何情况下，不得燃烧电芯或将电芯投入火中，否则会引起电芯燃烧，这是非常危险的，应绝对禁止。

5.3 The cells shall never be soaked with liquids such as water, seawater, drinks such as soft drinks, juices, coffee or others.

不得将电芯浸泡液体，如淡水、海水、饮料（果汁、咖啡等）。

5.4 The battery replacement shall be done only by either cells supplier or device supplier and never be done by the user.

更换电芯应由电芯供应商或设备供应商完成，用户不得自行更换。

5.5 Prohibition of use of damaged cells

禁止使用已损坏的电芯

The cells might be damaged during shipping by shock. If any abnormal features of the cells are found such as damages in a plastic envelop of the cell, deformation of the cell package, smelling of an electrolyte, an electrolyte leakage and others, the cells shall never be used any more. The Cells with a smell of the electrolyte or a leakage shall be placed away from fire to avoid firing.

电芯在运输过程中可能因撞击等原因而损坏，若发现电芯有任何异常特征，如电芯塑料封边损坏，外壳破损，闻到电解液气味，电解液泄漏等，该电芯不得使用。有电解液泄漏或闻到异常味道的电池应远离火源以避免着火。