

深圳市昆腾实业有限公司

— -- SHENZHEN KUNTENG CO., LTD — --

规格书Specifications

圆柱型镍氢可充电电池Rechargeable Nickel-Metal Hydride Battery

1. APPLICATION 应用

This specification can be applies to the Sealed Nickel-Metal hydride rechargeable cell or assemble battery
此规格书应用与镍氢电池或镍氢电池组

Model: **TINKO-1/3F6S-H 250mAh 9V**

型号INKO-1/3F6S-H 250mAh 9V

Single battery type:1/3F6S

单个电池型号：1/3F6S

2、 This specification suits to the cylindrical batteries listed below:

此规格书适用于以下柱型电池

A. Battery nominal voltage: 8.4V.

A: 额定电压：8.4V

B. Battery pack voltage can be got by one single cell voltage multiply the quantity of the single cells.

B: 电池组的电压可根据电池数量乘单个电池的电压即可。

3、 Specifications 规格

The table below can be taken as the basic guideline of evaluation the battery quality.

以下表格数据根据电池质量评估指导体系获取。

ITEM 项目	Unit 单位	Specification 规格	Conditions 条件
Nominal Voltage 额定电压	V/pack V/组	<u>8.4</u>	Pack 组
Nominal Capacity 额定容量	mAh 毫安	<u>250</u>	Standard Charge/Discharge 标充/标放
Standard Charge 标准充电	mA 毫安	<u>25</u> (0.1C)	T _i = 0~45°C(see Note 1) 温 度=0-45°
	Hour 小时	<u>15</u>	
Quick Charge 快速充电	mA 毫安	<u>50</u> (0.2 C)	-ΔV=35~70mV, Environment Temperature 0~45°C -dT/dt=1.0~3.0°C/min
	Hour 小时	6.5	
Trickle Charge 涓流充电	mA 毫安	<u>5-12.5</u> (0.02C~0.05C)	T _i = 0~45°C 温度=0-45°
Internal Impedance 内阻	mΩ/pack 欧姆/组	≤1500	Fully charged battery, test under 20°C(1KHz) 20°C(1KHz)下电池满充
Discharge Cut-off Voltage 放电终止电压	V/pack V/组	<u>7v</u> (Standard)7V (标准)	
Quick discharge 快速放电	mA 毫安	<u>250</u>	Cut off voltage 1.0V/cell, test under -20-60 after normal charge -20-60° 标准充电后, 终止电压 1.0V/个
Storage Temperature	°C 度	-20~45	Charge the battery to the full condition of

储存温度			80% 带电量 80%
Typical Weight 标准重量	G 克	40	

4. PERFORMANCE 性能

4.1 The battery should be tested with the condition below except special instruction:

电池要根据以下特定的要求进行测试

Working Temperature: 20±5°C 工作温度: 20±5°C

Relative Humidity: 65±20% 相对湿度: 65±20%

4.2 Caution: Standard charge and discharge condition: 注意: 标准充电, 标准放电条件:

Charge: 25mA (0.1C) × 15hrs 充电: 25mA (0.1C) × 15hrs

Discharge: 50mA (0.2C) to 7V/ set 放电: 50mA (0.2C) to 7V/ set

4.3 Testing facility must conform to the condition: 测试仪器必须符合依稀条件

Voltage meter: IEC 51/IEC 485 stipulated grade 0.5 or above. Resistance more than 10KΩ/V

电压表: IEC 51/IEC 485 0.5 或以上规格。电阻超过 10KΩ/V

Ampere meter : IEC 51/IEC 485 stipulated grade 0.5 or above, including the down-lead resistance totally less than 0.01Ω.

电流表: IEC 51/IEC 485 0.5 或以上规格.引线电阻要低于 0.01Ω.

BVIR: AC 1KHz sine wave 4 terminals testing equipment.

内阻测试仪: 交流 1KHz 正弦波 4 终端测试。

TESTING ITEM 测试项目	UNIT 单位	SPECIFICATION 规格	CONDITION 条件	REMARKS 备注
Open circuit voltage 开路电压	V/set 伏/组	≥8.75	Test after standard charged and placed for one hour time 静置一小时后标准充电	
Capacity 容量	mAh 毫安	≥250	Standard charge and discharge 标准充电/标准放电	Allows 3 times recycling 允许三次循环
Discharge at 0.5C 0.5C 放电	Min 分钟	Discharge time≥108 放电时间大于等于 108	Standard charge, then shelve for 60min, diacharge at 0.5C to 7.0V 标准充电, 静置 60 分钟, 0.5C 放电至 7.0V	
Self-discharge 自放电	mAh 毫安	Discharge capacity≥150 60% of nominal capacity 放电容量大于等于 150, 标准容量的 60%	Standard charge, storage for 1 year with the temperature 20°C, and standard discharge 标准充电, 储存一年后在 20° 温度下, 标准放电	
Constant humidity and hot performance 恒湿和热性能		No damage 无损坏	Full charge the battery at current 0.5C, 33±3°C, 80±5%R.H., storage 14 days. 温度 33±3°C, 湿度 80±5%, 电池完全充电, 储存 14 天	
Vibration		Voltage variety:	Charge at current 0.1C for 16hrs, place for 24 hrs,	

震动测试		$\leq 0.02V/cell$ Internal impedance: $\leq 5 m\Omega/cell$ 电压变化量 单个电池小于或等于 0.02V。单个电池内阻变化小于或等于 5m Ω	check the battery before and after vibration. Vibration condition: Swing: 1.5mm, Frequency: 3000CPM, Vibrate for 1hr to any direction. 0.1C 充电 16 个小时，静置 24 小时。检查震动测试前后的电池。 条件：摇摆 1.5mm. 频率 3000CPM，向任何方向震动一个小时。	
Fall down test 跌落测试		Voltage variety: $\leq 0.02V/cell$ Internal impedance: $\leq 5 m\Omega/cell$ 电压变化量 单个电池小于或等于 0.02V。单个电池内阻变化小于或等于 5m Ω	Charge at current 0.1C for 16hrs, place for 24 hrs, check the battery before and after fall down test; Impact condition: Fall down from height 1.5m to any direction on the board(Thickness: 10mm), test for 3 times 0.1C 充电 16 个小时，静置 24 小时。检车跌落测试前后的电池。 影响条件：从 1.5M 高向任何方向跌落在纸板上（厚度 10mm），测试 3 次。	
Over charge 过充测试		No leakage 无漏液	Charge at 0.1C for 258 days, 0.2C discharge to 1.0V more than 5H 0.1C 充电 258 天，0.2C 放电至 1V， 时间超过 5 小时	
Safety 安全测试		No rupture, explosion, but leakage, distortion and package damaged allowed. 无破裂和爆炸。 允许电池漏液， 变形和包装损坏	Short circuit the battery by the load less than 2Ω after standard charge the battery 标准充电后再小于 2Ω 的负载下使电池短路，	
Over discharge 放过测试		No explode. 无爆炸	Discharge the battery at current 0.2C to 0V, then over discharge the battery at current 1C for 60mins 电池 0.2C 放电至 0V，然后 1C 过充的情况下使电池充电 60 分钟。	
Recycling test(IEC standard) 循环测试（国际电工委员会标准）	Cycle 循环次数	≥ 500	IEC standard 国际电工委员会标准	Refer to Remarks 1 见备注 1

5. Structure, size and marks. 结构，尺寸和标注。

Please refer to the attached diagram. 见附件图表

6. Appearance 外观

There should be no craft, scratch, breakage, dust, color changed, leakage and deformed.

无刮痕，裂口，粉尘，变色，漏液和变形。

7、WARRANTY 保质期

Guarantee time for one year **due to the processing and raw material defectiveness.**

保质期一年。

Suggestion: The products before delivery would be charged 20-80% capacity according to the transportation distance and packing condition. While checking the capacity, please discharge the battery at 0.2C to 7.0V; then charge and discharge the battery at by standard current. If the storage time over 2 months or above, please discharge the battery at the current 0.2C to 7.0V, then charge the battery at 0.1C for 15 hours, after that place for 20mins, discharge the battery at 0.2C to 7.0V. After this activation, check the capacity by the standard current charge and discharge the battery

The first time use suggested to take standard charge method to charge the battery to prevent from damage to battery.

建议：根据运输的距离以及包装条件，发货前电池的带电量应该在在 20-80%。测试电池的容量，应从 0.2C 放电至 7.0V。使用标准的电流给电池充电和放电。储存时间超过 2 个月，0.2C 电流放电至 7.0V，然后 0.1C 充电 15 个小时。放置 20 分钟之后，0.2C 放电至 7.0V。第一次使用，建议用标准的充电方式给电池充电以防电池受到损坏。

CAUTION 注意：

A. Please do not throw into fire or try to open it. 请勿把电池打开或扔进火中。

B. Please do not mix use with other type of batteries or old one.请勿与其他型号或者旧电池混合使用。

C. Please do not discharge the battery at the current exceeds the stipulated one on specification.

请勿给超过规格书中规格的电流给电池放电。

D. Please do not short circuit the battery prevent from permanent damage.

请勿使电池短路从来防止电池的永久损坏。

E. Please do not jointing the batteries. 请勿使电池**连在一起**

F. **Please do not reverse load the batteries.**

G. If use the battery at the utmost condition, it could be shorten the battery recycling life, such as utmost temperature, recycling and utmost charge and discharge it.

如果在极限条件下使用电池，会降低电池的循环次数。如极限温度，充电放电等。

H. The battery should be place in cool and dry environment with the charged condition. **And should be discharged before mass delivery.**

电池充电应该在干燥阴凉的地方。**批量配送前应该放电。**

I. The battery should be stopped using while abnormal happened during working process, please send the battery to the distributor for handling.

在使用过程中，如果电池出现异常现，电池应停止立即停止使用。并将电池返回给供货商处理。

J. Due to the controlled by electrochemistry system, for long time storage situation, suggested to charge the battery to 80%~100% of its capacity.

根据电化学系统把控，电池在长时间的储存后，建议将电池充电到该电池额定容量的 80%-100%

K. In order to maintain the battery performance, after storage over 6months, suggest to charge and discharge the battery(Discharge the battery at current 0.2C to 7.0V before charge the battery). Then can use or stock it.

为了有效的维护电池的性能，在储存 6 个月之后，建议将电池进行充放电（充电之前将电池以 0.2C 电流放电至 0.7V）然后使用电池或者继续储存电池。

TINKO-1/3F6S-H250MAH9V battery performance Specification

TINKO -1/3F6S-H250MAH9V

电池性能规格

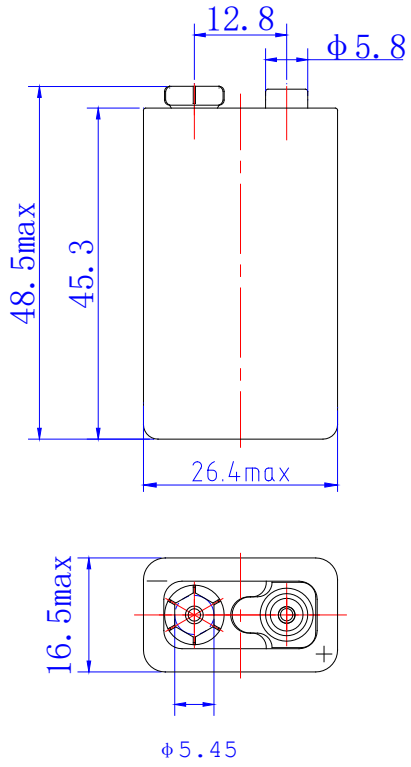
Model 型号	Rechargeable Nickel-Metal Hydride Battery 镍氢充电电 池	
Name 名称	TINKO-1/3F6S-H250	
Nominal Voltage 额定电压	1.2V	
APPLICATION 应用	25-125 mA	
Capacity 容量	discharge to 0.1 C to 0.5 C (at 20°C) 20° 条件下 0.1C 放电至 0.5C.	
	Nominal Capacity : 250mAh 额定容量 250mah	
	Minimum Capacity: 200mAh 最小容量 200mah	
Dimension 尺寸	Length * width(±0.2) 长宽(±0.2)	14.2*5.6mm
	High 高	21.5±0.2mm
	Charging conditions 充电条件	
Charge at 0.1 C for 16 hour (at 20°C) 20° 条件下 0.1C 充电 16 个小时。		
Quick Charge 快充	50 mA to 125 mA (0.2C to 0.5C) 50mA 到 125mah, (0.2C 到 0.5C)	
	Stop charge condition: 终止充电条件 -ΔV=10-15mV/Cell or stop charge when normal capacity =120% ΔV=10-15mV/ 当电量 120% 时停止充电	
	Max Temperature=55°C(122°F), 最高温度 55° T ₁ = 10~45°C 温度: 10~45°	
Internal Impedance 内阻	Average internal resistant is 800mΩ when fully charge 满充 条件下平均内阻为 800mΩ	
IEC Cycle Life 循环次数	≥500 times ≥500 次	
Weight 重量	5.5g 5.5克	
Temperature Range 温度范围	Standard Charge 标 充	0°C to 45°C
	Quick Charge 快充	10°C to 45°C
	Discharge 放电	-20°C to 50°C
	Storage 储存	-20°C to 35°C

2. IEC standard recycling life. 、ICE 循环寿命标准

Cycle No. 循环次数	Charge 充电	Rest 搁置	Discharge 放电
1	0.1C×15h 0.1C*15 个小时	None 无	0.25C×2h20min 0.25C*2 小时 20 分钟
2-48	0.25C×3h10min 0.25C*3 个小时 10 分钟	None 无	0.25×2h20min 0.25*2 小时 20 分钟
49	0.25C×3h10min 0.25C*3 小时 10 分钟	None 无	0.25C to 1.0V/ cell 每个电池 0.25C 到 1.0V
50	0.1C×15h 0.1C*15 个 小时	1-4h 1-4 小时	0.2C to 1.0V/ cell 每个电池 0.2C 到 1.0V
<p>Repeat 1-50 times recycling, until that the battery discharge time less than 3hrs at the 50 times. 重复 1-50 此循环，直到在 50 次循环时电池放电少于 3 小时</p>			

Attaches the graph : 附件图表

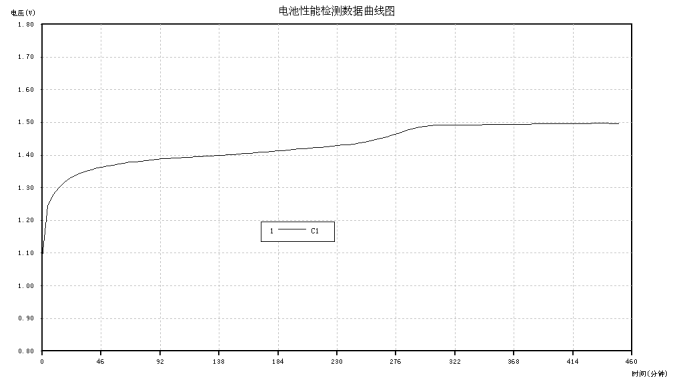
8, combined chart 组合结构图



Charging and discharging characteristic

0.2C charge curve

Voltage (V)



0.2C Discharge curve

Voltage (V)

