



# Dongguan Large Electronics Co.,Ltd

## 东莞市钜大电子有限公司

### NI-MH 5/6AAA600mAh 12V

#### NI-MH Battery Technology Specification

#### 镍氢电池产品技术规格书

Customer confirmation 客户确认	Checked 签 名	
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(If manufacturer want to modify the product technology specification, we won't inform you additionally)

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## 1. 范围 SCOPE

此种规格适用于LARGE各种镍氢圆柱形电池和电池组。

This specification governs the performance of the following LARGE Nickel-Metal Hydride Cylindrical Cell and its stack-up batteries.

型号: NI-MH5/6AAA600mAh 12V

LARGE Model: NI-MH5/6AAA600mAh 12V

规格书显示了电池的标称电压。电池组的标称电压等于单体电池的电压乘以单体电池的数目。

The data involving nominal voltage and the approximate weight of stake-up batteries shall be equal to the value of the unit cell multiplied by the number of unit cells in the battery.  
单体电池的标称电压= 1.2V

Nominal voltage of unit cell = 1.2V

## 2. 规格 RATINGS

类型 Description	单位 Unit	说明 Specification	环境 Conditions
标称电压 Nominal Voltage	V	12.0	
标称容量 Nominal Capacity	mAh	600	标准充电/放电 Standard Charge/discharge
最小容量 Minimum Capacity	mAh	550	标准充电/放电 Standard Charge/discharge
标准充电 Standard Charge	mA	60(0.1C)	Ta=0~45°C
	hour	14-16	
快速充电 Fast Charge	mA	600(1C)	-ΔV=0-5mV/电池 -ΔV=0~5mV/cell 终止时间=110%充入容量(仅供参考) Timercutoff=110%input capacity 断电温度=55°C Temp.cutoff=55°C Ta=10~45°C
	hour	1.1approx	
涓流充电 Trickle Charge	mA	30(0.05C) ~ 60(0.1C)	Ta=0~45 °C
终止电压 Discharge Cut-off Voltage	V	10.0	
最大放电电流 Maximum Discharging Current	mA	1800 (3C)	Ta=20~45°C
贮存温度 Storage Temperature	°C	-20~35°C	



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### 3. 性能 PERFORMANCE

测试电池的状态应为用户收到后不超过一个月的产品

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

适用温度 Ambient Temperature:  $T_a=20\pm 5^{\circ}\text{C}$

相对湿度 Relative Humidity:  $65\pm 20\%$

标准充放电 Standard Charge/ Discharge Condition:

充电/Charge:  $60\text{mA}(0.1\text{C})\times 16\text{hrs}$

放电/Discharge:  $140\text{mA}(0.2\text{C})\text{ to }3.0\text{V}$

测试 Test	单位 Unit	说明 Specification	环境 Conditions	备注 Remarks
容量 Capacity	mAh	$\geq 550$	标准充电/放电 Standard Charge/Discharge	允许达到三个循环 Up to 3 cycles are allowed
开路电压 Open Circuit Voltage (OCV)	V	$\geq 12.5$	充电后一小时内 Within 1hr after standard charge	
内阻 Internal Impedance (Ri)	m $\Omega$	$\leq 600$	达到完全充电状态 Upon fully charge (1kHz) (1kHz)	
高倍率放电 High Rate Discharge (0.5C)	分/min	$\geq 108$	标准充电后一小时内进行放电 Standard Charge, 1hr rest before discharge	
高倍率放电 High Rate Discharge (1C)	分/min	$\geq 54$	标准充电后一小时内进行放电 Standard Charge, 1hr rest before discharge	
过充 Overcharge	N/A	不漏不爆炸 No leakage nor explosion	60mA (0.1C) 充电48小时 60mA (0.1C) charge 48 hours	
容量保留 Charge Retention	mAh	$\geq 360$	标准充电后在 $20\pm 2^{\circ}\text{C}$ 下搁置 28天再用0.2C进行放电 Standard Charge, Storage: 28days at $20\pm 2^{\circ}\text{C}$ , Standard Discharge	
IEC 循环测试 IEC Cycles Test	周期 Cycle	$\geq 500$	IEC61951-2 (2003)	



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测试 Test	单位 Unit	说明 Specification	环境 Conditions
泄漏 Leakage	N/A	不漏液，不变形 No leakage nor deformation.	以(0.1C)完全充满，搁置14天 Full charged at (0.1C) stand for 14 days
短路 Short Circuit	N/A	可能发生漏液、变形，但是不会发生爆炸。 Leakage & deformation may occur, but no explosion is allowed.	在标准充电后，短路1个小时(铜芯=0.75mm <sup>2</sup> ×20毫米) After standard charge, short circuit for 1 hour(leading wire=0.75mm <sup>2</sup> ×20mm)
震动 Vibration Resistance	N/A	每只电池电压变化应在 0.02V/之内，内阻应该在5 milli-ohm 之内 Change of Voltage $\Delta V < 0.02$ V, Change of internal impedance $\Delta Ri < 5 \text{ m}\Omega$ .	以0.1C给电池组充电16小时，然后再放置24小时。检测电池受振前后的状态。 振幅为1.5mm 3000CPM 测试时间应不少于60分钟 Charge the battery 0.1C 16hrs, then leave for 24hrs. check battery before / after vibration. Amplitude:1.5mm Vibration:3000CPM Any direction for 60mins.
跌落 Impact Resistance	N/A	每只电池电压变化应在 0.02V/之内，内阻应该在5 milli-ohm 之内 Change of voltage $\Delta V < 0.02$ V, Change of internal Impedance $\Delta Ri < 5 \text{ m}\Omega$ .	以0.1C给电池组充电16小时，再放置24小时。检测电池跌落前后的状态 高度为50cm，厚度为30mm 测试次数应不少于3次，测试方向分为X, Y, Z三个方向。 Charge the battery 0.1C 16hrs, then leave for 24hrs. check battery before / after dropped, Height: 50cm, Wooden board(thickness 30 mm)Direction not specified 3 times.

4. 结构,尺寸及标记 CONFIGURATION, DIMENSIONS AND MARKINGS

请查阅附上图表。Please refer to the attached drawing.

5. 外观 EXTERNAL APPEARANCE

电池/电池组在自由放置下，无破裂、划痕、生锈、变色、漏液及变形等现象。

The cell/ battery shall be free from cracks, scars, breakage, rust, Discoloration, leakage nor deformation.



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**6、警告 CAUTION**

1. 不允许反极充电。Reverse charging is not acceptable
2. 电池在充电中不得负荷电流。Do not burthen current when charging.
3. 充放电不得超出说明书规定的范围。Do not charge/discharge with more than the specified current.
4. 切勿使电池短路，否则可能使其永久性损坏。Do not short circuit the cell/ battery. Permanent damage to the cell/ battery may result.
5. 请勿将电池投入火中或拆解。Do not incinerate or mutilate the cell/ battery.
6. 使用不当会导致电池的使用寿命的下降，如：极端高温、深循环、过充或过放。Do not subject batteries to adverse conditions like: extreme temperature, deep cycling and excessive Overcharge/overdischarge. The life expectancy may be reduced.
7. 电池不使用时应放在干燥通风的地方。大量贮存或装运前应对电池进行放电。Store the cell/ battery in a cool dry place. Always discharge the cell/battery before bulk storage or shipment.
8. 若持续贮存，为了维护电池性能，在三个月内要对电池进行充放电一次，以防其失去功效。Cycle (charge and discharge) the battery every 3 months to maintain cell/battery performance when being stored for an extended period of time.
9. 远离儿童，如不慎误吞请立即送往医院。Keep away from children. If swallowed, contact a physician at once.
10. 电池在塑料盒内要通风，因为内部或许有释放氧气和氢气的危险，导致因火源而引起爆炸。

Avoid airtight battery compartments. Ventilation should be provided in the plastic case of batteries, otherwise oxygen and hydrogen gas generated inside can cause explosion when exposed to fire sources such as motors or switches.

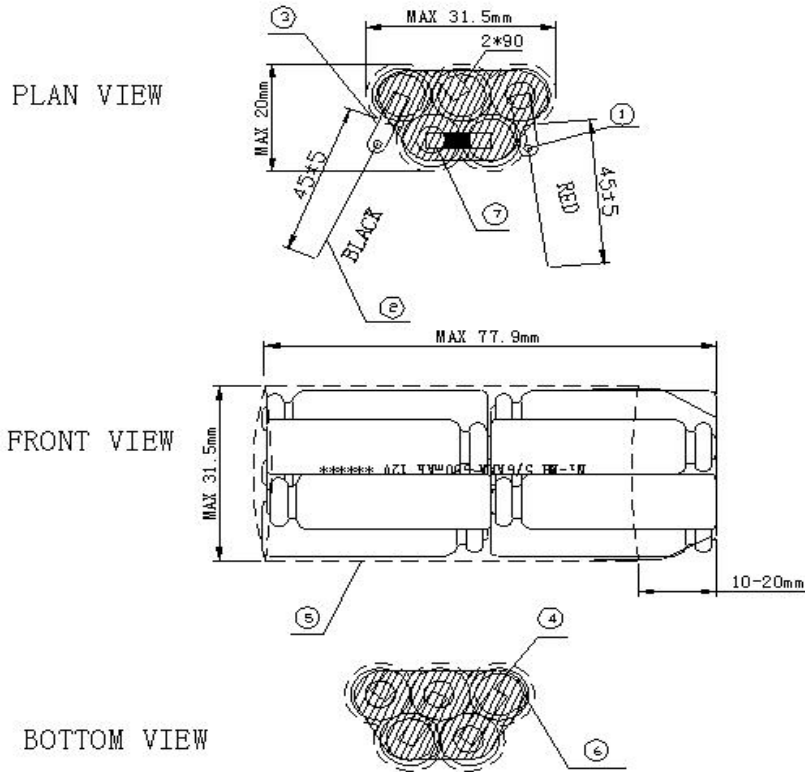
备注/Remark:

IEC61951-2周期寿命测试 IEC 61951-2(2003) Cycle Life Test:

周期Cycle	充电Charge	持续状态Rest	放电Discharge
1	0.1C×16hrs	无	0.25C×2hrs20mins
2-48	0.25C×3hrs10mins	无	0.25C×2hrs20mins
49	0.25C×3hrs10mins	无	0.25Cto1.0/cell
50	0.1C×16hrs)	1-4hr(s)	0.2Cto1.0/cell
循环1至50次可重复使用，直到任意放电50周期使用时间少于三小时则停止Cycle 1 to 50 shall be repeated until the discharge duration on any 50 <sup>th</sup> cycle becomes less than 3hrs			

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产品尺寸示意图 Dimensions of the battery:



BATTERY REMARK :

Ni-MH 5/6AAA 600mAh 12V \*\*\*\*\*

YYMMDD

NO.	DESSIGNATION	QTY	MATERIALS	REMARKS
9	PTC	1	170	⑦
8	INSULATION PAPER SHEET	2	(28+18)*17	⑥
7	GASKET	10	AAA WHITE	
6	OUTER PVC	5	17mm GREEN	
5	INTERIOR PVC	1	44mm GREEN	⑤
4	CONNECT TAG	7/1	0.1*3*14/2*90	④
3	SOLDER TAG	2	0.1*3*14	③
2	LEAD WIRE	2	UL1007AWG24 R=B=40	②
1	INSULATION SHRINK	3	BLACK	①