

鎳氫柱型可充電電池規格書

SPECIFICATIONS

NICKEL-METAL HYDRIDE

RECHARGEABLE BATTERIES

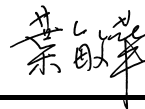
H60AAA

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1、範圍 Scope

該規格書適用於由松柏(廣東)電池工業有限公司提供之“Vinnic”—“銀戰士”商標鎳氫柱型可充電電池。

This specification is applicable to the “Vinnic” brand Nickel-metal hydride battery supplied by **CHUNG PAK BATTERY WORKS, LTD.**

2. 額定性能 Ratings

項目 Description	單位 Unit	指標 Specification	條件 Condition
額定電壓 Nominal Voltage	V/只 V/cell	1.2	單體 Unit cell
最低容量 Minimum Capacity	mAh	600	標準充放 Standard Charge/Discharge
額定容量 Nominal Capacity	mAh	600	標準充放 Standard Charge/Discharge
標準充電 Standard Charge	mA	60 (0.1C)	T ₁ =20±5℃(見See Note 1)
	hour	16	
急充 Fast Charge	mA	600 (1C)	充電終止條件：-ΔV=0~5mV/只, 充電至120%額定容量, 電池升溫至55℃, 溫度上升速度0.8℃/分鐘, T ₁ =20±5℃
	hour	1.2 approx (見See Note 2)	-ΔV=0~5mV/cell, Timer Cutoff=120%nominal capacity, Temp.Cutoff=55℃, dT/dt=0.8℃/min, T ₁ =20±5℃
涓充 Trickle Charge	mA	(0.03C)~(0.05C)	T ₁ =20±5℃
標準放電 Standard discharge	mA	120 (0.2C)	T ₁ =20±5℃ 濕度：最大85% T ₁ = 20±5℃ Humidity：Max.85%
放電截止電壓 Discharge Cut-off Voltage	V/只 V/cell	1.0	/
儲存溫度 Storage Temperature	℃	-20~25(約一年)* Within 1 year*	電池狀態：充電30% 最大濕度：85% State：30% charge Max Humidity：85%
		-20~35(約6個月) Within 6 months	
		-20~45(約1個月) Within 1 month	
		-20~55(約1個星期) Within 1 week	
單體電池重量 Typical Weight	g	12.0	/

*爲了保持電池的最佳性能,建議給長時間不使用的電池每6個月充電30%,充電前將電池放電。

*To keep the best performance for those not used for a long time, we recommend to charge the cells/batteries at least 30% after discharge entirely in every 6 months.

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3、電池性能

除非另有說明，測試須在發貨後一個月內在下述條件下進行：

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

環境溫度 T_1 : $20\pm 5^{\circ}\text{C}$, 相對濕度 : $65\pm 20\%$

Ambient Temperature: $20\pm 5^{\circ}\text{C}$, Relative Humidity: $65\pm 20\%$

注意 Notes :

標準充放條件 Standard Charge/Discharge conditions:

充電 Charge : 60mA (0.1C) 充16小時
60mA (0.1) charge for 16hrs

放電 Discharge : 120mA (0.2C) 至1.0V/cell
120mA (0.2C) to 1.0V/cell

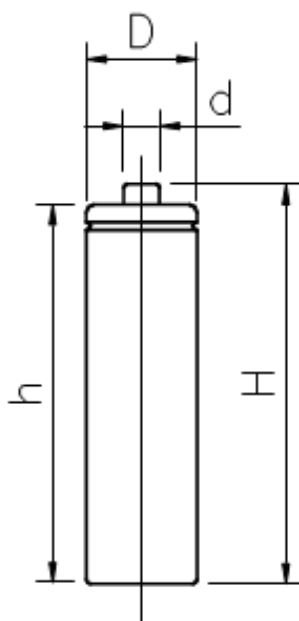
測試項目 Test	單位 Unit	指標 Specification	其它條件 Condition	備註 Remarks
容量 Capacity	mAh	≥ 600	標準充放 Standard Charge/ Discharge	允許最多三次充放 Up to 3 cycles are allowed
開路電壓(OCV) Open Circuit Voltage	V	≥ 1.25	在標準充電後1小時內測量 Within 1 hour after standard charge	/
內阻 Internal Impedance	m Ω	≤ 38	充滿電後 (1KHZ的交流頻率) Upon fully charged(1KHz)	/
1C放電時間 High Rate Discharge(1C)	min	≥ 51	標準充電後擱置1小時， 600mA放電至1.0V Standard Charge, 1 hour rest before discharge by 1C to 1.0V/cell	允許最多三次充放 up to 3 cycles are allowed
荷電保持能力 Charge Retention	mAh	≥ 360 (60%)	標準充電後存放28天， 標準制度放電 Standard Charge, Storage: 28 days Standard Discharge	$T_1=20\pm 5^{\circ}\text{C}$ (見See Note 1)
IEC循環壽命 IEC Cycle Life	Cycle	≥ 500	IEC61951-2(2003)7.4.1.1	(見See Note3)
泄漏 Leakage	/	無漏液或變形	60mA充電48小時後檢查 Fully charged at: 60mA for 48 hrs	/

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測試項目 Test	單位 Unit	指標 Specification	其它條件 Condition	備註 Remarks
抗振動 Vibration Resistance	/	電壓變化 $<0.02\text{V}/\text{只}$ ， 內阻變化 $<5\text{m}\Omega/\text{只}$ Change of voltage should be less than $0.02\text{V}/\text{cell}$, change of impedance should be less than $5\text{ m}\Omega/\text{cell}$	將電池用 0.1C 電流充14小時，開路24小時，檢查振動前後電池狀況，振動幅度 1.5mm ，振動3000次，任意方向振動60分鐘 Charge the battery at 0.1C for 14hrs, then leave for 24hrs, check battery before/after vibration, amplitude 1.5mm , vibration 3000 times, any direction for 60 mins.	/
抗撞擊 Impact Resistance	/	電壓變化 $<0.02\text{V}/\text{只}$ ， 內阻變化 $<5\text{m}\Omega/\text{只}$ Change of voltage should be less than $0.02\text{V}/\text{cell}$, change of impedance should be less than $5\text{ m}\Omega/\text{cell}$	將電池用 0.1C 電流充14小時，開路24小時，檢查掉落前後電池狀況，落體高度 50cm ， 30mm 厚的木板，3次 Charge the battery at 0.1C for 14hrs, then leave for 24hrs, check battery before/after dropped, height 50 cm wooden board (thickness 30mm) direction not specified, 3 times.	/

4、電池結構及尺寸 Configuration and dimensions



單位 Unit: mm

D	10.00 ± 0.10
d	3.20 ± 0.08
H	44.00 ± 0.50
h	42.00 ± 0.50

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5、外觀 External appearance

無裂縫、疤痕、破裂、銹蝕、臟污、漏液、變形

The cell/battery shall be free from cracks, scars, breakage, rust, discoloration, leakage or deformation.

6、保質期 Warranty

在正常使用下，保質期為 1 年。

One year limited warranty against workmanship and material defects.

7、使用注意事項 Caution

(1) 勿將電池反極充電。

Reverse charging is not acceptable.

(2) 初次使用前先充電。

Charge before use. The cells/batteries are delivered in an uncharged state.

(3) 避免以高於指定的電流充放電。

Do not charge/discharge with more than our specified current.

(4) 防止電池短路，以免造成可能的損壞。

Do not short circuit the cell/battery Permanent damage to the cells/batteries may result.

(5) 勿拆解或焚燒電池。

Do not incinerate or mutilate the cells/batteries.

(6) 勿在電池上直接焊接。

Do not solder directly to the cells/batteries.

(7) 如極端高溫、深度循環、過量的過充/過放電，電池的使用壽命可能會下降。

The expected life may be reduced if the cells/batteries are subjected to adverse conditions as: extreme temperature, deep cycling, excessive overcharge/ over-discharge.

(8) 電池應貯放乾爽陰涼處；組合電池前應將電池放電。

Store the cells/batteries in a cool dry place. Always discharge batteries before packing.

Notes

(1) T_1 ：環境溫度 Ambient Temperature.

(2) 以放電態為基準的大致充電時間僅供參考。

Approximate charge time from discharged state, for reference only.

(3) IEC61951-2(2003)第 7.4.1.1 條：循環壽命。

IEC61951-2(2003)7.4.1.1 Cycle Life.

循環周次 Cycle No.	充電 Charge	擱置 Rest	放電 Discharge
1	0.1C×16h	無 None	0.25C×2h20min
2-48	0.25C×3h10min	無 None	0.25C×2h20min
49	0.25C×3h10min	無 None	0.25C to 1.0V/cell
50	0.1C×16h	1-4h	0.2C to 1.0V/cell

循環至任一第50次放電時間不足3小時為止。

Cycle 1 to 50 shall be repeated until the discharge duration on any 50th cycle becomes less than 3 h.

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