

Vinnic®
銀戰士



**Ni-MH Rechargeable
Battery**

鎳氫可充電電池



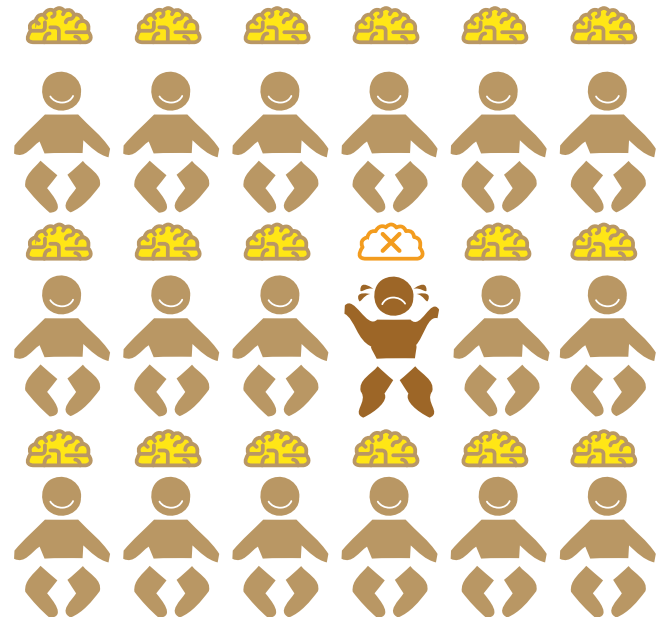
Ni-MH Rechargeable Battery 鎳氫可充電電池

- 25 million children in the world were suffered from drinking of LEAD, MERCURY and CADMIUM contaminated water!
- Every 6 of thousand patients in the world were caused by the exposure of LEAD!
- There are around 600 thousands children in the world were mentally disable due to the exposure to LEAD!

Heavy metals such as lead, mercury and cadmium may have long-term impact on the health of human beings and other organisms. For example, lead poisoning can cause damage to the liver, kidneys, brain and even intellectual ability. Mercury poisoning can cause damage to the liver, skin and nervous system, whereas cadmium poisoning can lead to renal failure and osteomalacia.

- 每年世界約有2500萬名兒童，因為水污染而引發疾病，當中包括鉛中毒、汞中毒及鎘中毒！
- 由鉛接觸造成全球的疾病負擔就有0.6%！
- 估計每年由鉛接觸所導致的智力殘疾兒童約為60萬！

鉛、汞及鎘這幾種重金屬，對人類及其他生物的健康影響深遠，像鉛中毒會造成肝、腎、腦的損害，甚至智力永久受損！汞中毒可導致肝、皮膚同神經受損，而鎘中毒就會引起腎功能喪失、骨質軟化等問題！



Corporate video



公司短片



Product video



產品短片



WeChat



Weibo



Facebook



天猫

0% 鉛 LEAD
汞 MERCURY
鎘 CADMIUM

Cadmium-free and environment friendly
無鎘與環保

Since 2003, Vinnic innovated NI-MH Rechargeable Batteries by using first-rank materials. While the safety standard of heavy metal for lead is 40 ppm, mercury is 5 ppm and cadmium is 20 ppm, the relevant contents in Vinnic's NI-MH Rechargeable Batteries are much lower than the standard. This is a further milestone in the development of high performance, reliable and environment friendly batteries.

Chung Pak has been keen on development of environment friendly batteries for over 30 years. And the fruitful achievement is devoted to our lovely earth, and our next generation.

2003年，銀戰士使用性能超卓的材料并研製出不同的配方，超前意識地製造鎳氫電池，做到無鉛無汞無鎘，鉛含量遠低於40ppm，汞含量遠低於5ppm，鎘含量遠低於20ppm。這是銀戰士研發高性能，安全可靠，環保電池的新里程碑。

為了地球，為了下一代，松栢在過去30多年致力生產無鉛無汞無鎘的環保高性能電池！



Ni-MH Rechargeable Battery

鎳氫可充電電池

Nickel Metal Hydride Rechargeable Cylindrical Battery

圓柱式鎳氫可充電電池

Main Features 主要特性

High capacity 超高容量	Applicable for high-drain devices 適用於高耗電量產品
Long service life 循環壽命長	500 cycles of 1C charge 可於 1C 充放條件下作 500 次放電循環使用
Quick charge capability 快速充電	Up to 2C high charge rate is possible 快速充電能力最高達 2C
High charge retention 充電保存能力高	80% capacity available after 28 days of storage at room temperature 於室溫存放 28 天可維持 80% 能量
No memory 無記憶效應	Discharge is not required before charging 不會記憶先前充電記錄
High safety standards 安全性高	Built-in resealable pressure relieve vent 內置安全排氣閥
Flexible standards 規格靈活	Customised battery packs based on customer needs 客人可選取適合產品需要的組裝設計
Size compatibility 合適尺寸	Vinnic offers a full range of Ni-MH rechargeable cylindrical batteries, from '2/3AAA' to 'D' type 銀戰士提供全系列鎳氫圓柱式可充電電池由 2/3 AAA 至 D 型
Attractive price 價格經濟	Vinnic is offering specially and economically designed version of Ni-MH 1600AA (AA size, 1600mAh) and H650 2/3AAF(2/3AA size, 650mAh) which are fully compatible to Ni-Cd AA and 2/3AA size batteries, respectively. The key advantages of Ni-MH H1600AA, H650 2/3AAF are of attractive price and environmental friendly 銀戰士的鎳氫 H1600AA(AA 尺碼, 1600mAh) 及 H650 2/3 AAF(2/3AAF 尺碼, 650mAh) 可分別兼用作鎳鎘電 AA 和 2/3AA 尺碼的電池。而以上電池均符合環保及經濟原則
Environmentally concerned 切合環保要求	No cadmium, lead and mercury. Most suitable for markets with high environmental concerns. 不含鎘、鉛及汞，絕對符合環保要求



H60AAA



H80AAA



H220AA



H240AA



H350C



H700D



H15-9V

Ni-MH Rechargeable Battery 鎳氫可充電電池

Specifications 產品規格

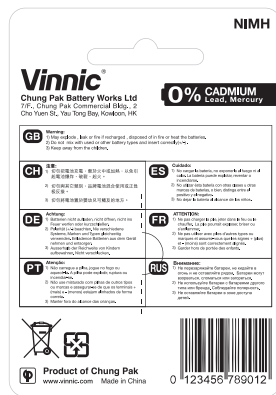
Battery 尺寸	Vinnic model No. 型號	Nominal voltage 標稱電壓	Nominal capacity 標稱容量 (mAh)	Standard charge 標準充電		Dimension 尺寸		Average weight 重量 (g)
				電流 (mA)	時間(h)	直徑 (mm)	高度 (mm)	
AAA	H80AAA	1.2	800	80	16	10.5(-0.7)	44.0(±0.5)	14.0
	H70AAA	1.2	700	70	16	10.5(-0.7)	44.5(-1.5)	13.0
	H70AAAF	1.2	700	70	16	10.5(-0.7)	43.7(-1.0)	13.0
	H60AAA	1.2	600	60	16	10.7(-0.7)	44.0(±0.5)	12
	H60AAAF	1.2	600	60	16	10.5(-0.7)	43.7(-1.0)	12.5
	H55AAA	1.2	550	55	16	10.5(-0.7)	44.5(-1.5)	12.5
	H55AAAF	1.2	550	55	16	10.5(-0.7)	43.9(±0.5)	11.0
	H30-2/3AAAF	1.2	300	30	16	10.5(-0.7)	29.0(-1.5)	7.5
	H65-5/4AAAF	1.2	650	65	16	10.5(-0.7)	50.0(-1.5)	14.0
AA	H210AA	1.2	2100	210	16	14.5(-0.7)	50.0(±0.5)	29.0
	H180AA	1.2	1800	180	16	14.5(-0.7)	50.5(-1.5)	27.5
	H180AAF	1.2	1800	180	16	14.5(-0.7)	49.2(-1.0)	27.5
	H160AA	1.2	1600	160	16	14.5(-0.7)	50.5(-1.5)	27.0
	H160AAF	1.2	1600	160	16	14.5(-0.7)	49.2(-1.0)	27.0
	H150AA	1.2	1500	150	16	14.5(-0.7)	50.5(-1.5)	27.0
	H150AAF	1.2	1500	150	16	14.5(-0.7)	49.2(-1.0)	27.0
	H120-4/5AAAF	1.2	1200	120	16	14.5(-0.7)	43.0(-1.5)	22.0
	H25-1/3AAF	1.2	250	25	16	14.5(-0.7)	17.5(-1.5)	7.5
	H50-1/2AAF	1.2	500	50	16	14.5(-0.7)	24.5(-1.5)	12.0
SC	H300SC	1.2	3000	300	16	22.5(-0.7)	42.5(±0.5)	59.0
C	H350C	1.2	3500	350	16	25.7(-0.7)	50.0(±0.5)	80.0
	H300C	1.2	3000	300	16	25.8(-1.0)	50.0(-1.5)	80.0
D	H900D	1.2	9000	900	16	33.0(-1.0)	61.1(±1.5)	167
	H700D	1.2	7000	700	16	32.7(-0.7)	60.0(±0.5)	158.0
	H510D	1.2	5100	510	16	32.7(-0.7)	61.0(±0.5)	135.0

1. Minimum discharge capacity when a single cell is discharged at 0.2C and 20° C after being charged at 0.1C for 16 hours.
容量0.2於20℃放電
2. Discharge capacity (for reference only), when a single cell is discharged at 0.2C and 20° C after being charged at 0.1C for 16 hours. 放電容量 (只作參考)
3. The charging must be carried out with appropriate cut-off controls, e.g. -ΔV, TCO etc. 充電時必須有自動終止控制 (如-ΔV, TCO etc.)
4. For a single cell with PVC tube. 已套PVC之單電.



Packing Information

包裝資料



Ni-MH Power Pack

(For both Cylindrical/ Single Cell)

用於圓柱式或單粒裝

Nickel Metal Hydride

(For Large Size Power Pack)

用於大尺寸多件裝

Nickel Metal Hydride

(For Single Cell, 2 or 4 pcs)

用於單裝，2粒或4粒裝



“D”Size

12pcs/Box

12粒/盒



“C”Size

24pcs/Box

24粒/盒



“AA”Size

40pcs/Box

40粒/盒



“AAA”Size

60pcs/Box

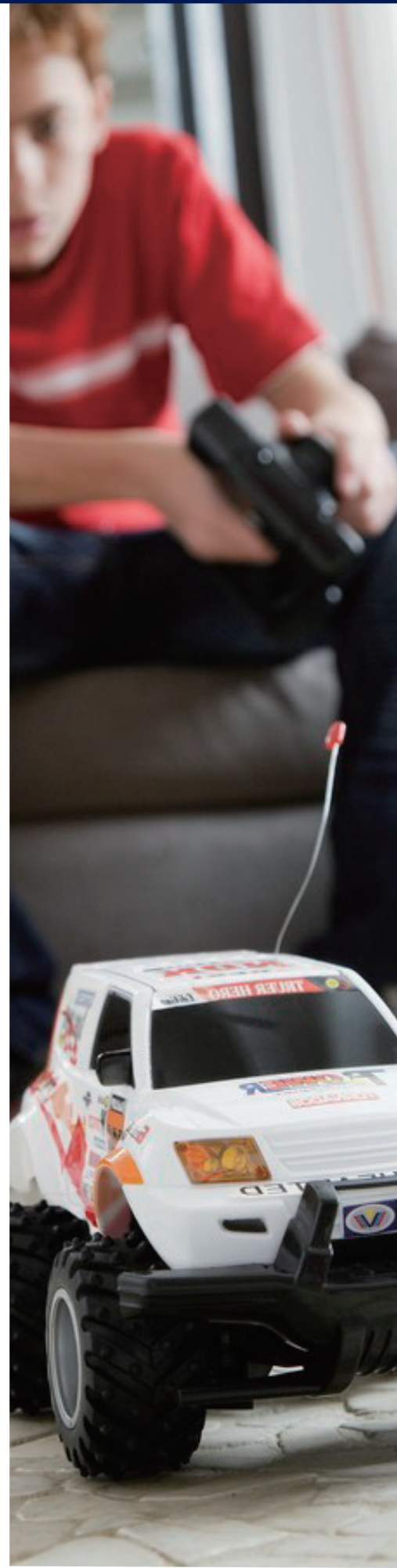
60粒/盒



“9V”Size

10pcs/Box

10粒/盒



Rechargeable Battery Pack

可充組裝電池

Flexible configuration

靈活規格

A wide range of Ni-MH cylindrical types are available. As different applications require different configurations, sizes and mAh capacity, consumers should specify the design and battery configurations of battery packs according to the following system:

本公司生產一系列鎳氫圓柱組裝充電電池，以配合各行各業對組裝充電電池規格、尺寸及容量的不同需求。故客戶可以根據以下系統，選取合適的組裝電池。

Designation system for battery pack

組裝電池型號設定系統

The design of a battery pack is composed of five code numbers. Each of them are used to identify different information:

組裝電池的型號設定是包含五個編碼，每個編碼均代表不同資料：

1. The number and type of single cells in a pack 組裝電池所包括的充電電池數量及種類；
2. The model number of the single cells 組裝電池所包括的充電電池型號；
3. The configuration 組裝規格；
4. The wires type 電線品種；
5. The direction of wires 電線的方向。

The sequence of code follows the above information flow. An example of such a designation method is shown below:

This is how we interpret our code for a battery pack:

每組的編號均依照以上的次序，現以3H160AAF/H4a為例，顯示其編號方法：

Example 例子： 3H160AAF/H4a		Description 內容描述	Reference 請參考
1	3H	Number of cells in the battery pack (the H=Ni-MH battery type is used) 組裝電池的數量及種類（H為鎳氫電池）	-
2	160AA	Model of battery 電池型號及其容量	Standard size of Ni-MH cylindrical 鎳氫圓柱型電池 充電電池
3	F	"F" = industrial use (without "F" = consumer type) 有F字樣的是工業市場用沒有F字樣的是消費市場用	
4	H	Configuration code 組裝規格	Part I 第一部份
5	4	Tag type code 連接插頭規格	Part II 第二部份
	a	Connector code 連接插頭品種	-

Notes 用戶須知

When using Vinnic batteries, all users must follow the company Battery Specification Guide Book and MSDS guide according to the specific type and model of the battery.
用戶必須按照本公司每款電池之電池規格說明書及MSDS使用電池。

For more battery safety instructions, please refer to the following documents, which can be accessed through Vinnic's sales office, or from our website at www.vinnic.com:

如欲瞭解更多電池安全指引，請向本公司營業員或網址www.vinnic.com索取以下資料

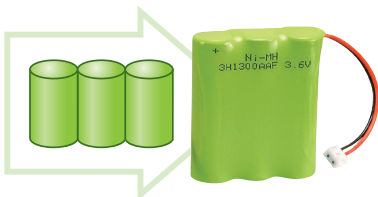
- 1) Battery Specification Guide Book 電池規格說明書
- 2) Material Safety Data Sheet (MSDS) 物料安全技術說明書
- 3) IEC Non-Rechargeable Batteries Safety Precautions IEC 一次電池安全指引
- 4) Battery Care 使用電池安全指引

Designation System for Battery Pack 組裝電池型號設定系統

Part I • Configuration code 第一部份：組裝規格的方法

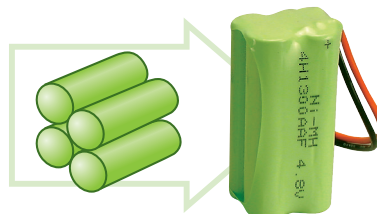
Code H:

Horizontal row 橫向串聯



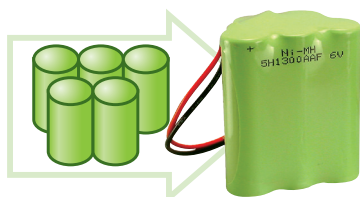
Code Y:

Cells arranged in a horizontal rectangle
四枚或以上雙數電池呈方形串聯



Code Z:

Cells arranged side by side in two horizontal zigzag rows with an unequal number of cells
五枚或以上單數電池呈梯形串聯



Code R:

Special configuration 特別組裝

Custom-made upon request

接顧客要求製作

Part II • Connector type specification 第二部份：連接插頭規格

Code 4:

Lead wire 接駁電線



Code a:

MJ-JST EHR-



Code b:

ML-MOLEX 5264-02



Code c:

MJ-MITSUMI R41-6199A



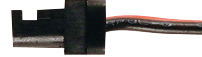
Code d:

LR-02F-1



Code m:

Multi-use plug



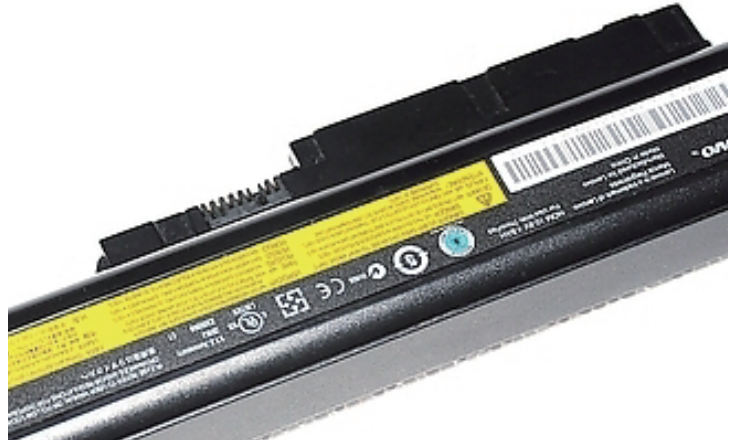
Code e:

Special connector 特別插頭

Custom-made upon request 接顧客要求製作

*For illustration purposes only 圖片只供參考

Ni-MH Rechargeable Battery 鎳氫可充電池



Warning	Danger
1. Don't throw the batteries into fire or heat the batteries	This may cause the batteries to disrupt or ignite
2. Don't directly solder the batteries	This may damage their insulating tapes and protective installation, even may cause leakage, explosion and fire
3. Don't insert and use batteries with the $\oplus$ & $\ominus$ electrode inverse	This can damage the batteries for being force charged, even may cause leakage, heat generation, disrupt, explosion or ignition
4. Don't short-circuit the positive and negative terminals of a battery	This may cause heat generation, leakage, explosion, fire and personal injury
5. Don't expose the batteries to water	This can cause heat generation or rust
6. Don't charge and force discharge batteries	This may cause leakage, heat generation, even explosion and ignition
7. Don't disassemble or damage the external tubes of the batteries or modify the batteries(stack-up batteries) etc.	This easily results in short-circuit, leakage, even ignition
8. Store unused batteries in their original packaging away from metal objects.	This can cause battery short-circuiting which may result in venting, leakage, and explosion and personal injury.
9. Don't crush, puncture, or otherwise mutilate to deform batteries	This may cause venting, leakage, explosion and personal injury
10. Immediately stop using the batteries if leakage, discolor or etc. with them are detected	This may cause accidents to occur
11. Don't drop or strongly strike the batteries	This may result in leakage, heat generation, disrupt, even ignition
12. To avoid using at high temperature and high humidity ambient	This may cause batteries early damage
13. a. Be sure to use the batteries within a temperature range from 0°C to 40°C b. Be sure to storage the batteries within a temperature range at 20±5°C	a. Use the batteries beyond the temperature range may cause leakage, heat generation, impaired performance, and shortening of service life of the batteries b. Storage the batteries beyond the temperature range may cause heat generation, impaired performance, and shortening of service life of the batteries
14. Don't use old batteries with new ones	Some batteries may be over-discharged. This can result in venting, leakage, explosion and personal injury
15. Don't use our batteries with any other type or brand of batteries	Mixed-matching of batteries may result in heat generation, leakage, explosion, fire
16. Remove batteries from equipment if it is not to be used for an extended period of time	When batteries beyond expiry period, electrolyte leakage may occur causing damage to the equipment
17. Exhausted batteries should be immediately removed from equipment	When discharged batteries are kept in the equipment for a long time, electrolyte leakage may occur causing damage to the appliance and/or personal injury
18. Keep the batteries out of the reach of children	To avoid being swallowed. If swallowed, Please see doctor immediately
19. Don't allow children to replace batteries without adult supervision	This may cause wrong operation, even may occur accident
20. Please use batteries within expiry period	To avoid using invalid batteries which beyond expiry period
21. Don't take batteries by hand directly. Please wear finger cots	This may cause rust
22. Don't take batteries with iron tweezer. Please use plastic tweezer.	This can cause battery short-circuiting which may result in heat generation, leakage, and explosion

We reserve all rights for the change of product specification and any information without any prior notice.

Ni-MH Rechargeable Battery 鎳氫可充電電池

警告	危害
1. 請勿將電池投入火中或加熱	以免電池發生破裂起火等
2. 請勿直接焊接電池	以免損壞絕緣圈及保護裝置，引致漏液、爆炸、著火
3. 將電池放入電子產品及使用過程中，請勿將 $\oplus$ 、 $\ominus$ 極反接	以免電池被迫充電而破壞電池，甚至會引起電池漏液、發熱、破裂、爆炸或起火
4. 請勿將電池正、負極短路	以免造成電池發熱、漏液或爆炸、著火及人身傷害
5. 請勿將電池浸入水中	以免電池發熱或生銹
6. 請勿對電池進行充電及強制放電	以免引起電池漏液、發熱、甚至爆炸及起火
7. 請勿拆開或弄破電池的外包裝，改裝電池(電池組)等	以免容易發生短路，產生漏液甚至起火
8. 請將不用的電池放在原包裝內，遠離易引起短路的金屬物體	以免造成電池短路，產生泄放、泄漏、爆炸和人身傷害
9. 請勿對電池擠壓，打孔或其他形式的破壞	以免造成電池泄放、泄漏、爆炸及人身傷害
10. 若電池有漏液、變色等異常現象，請停止使用	以免發生意外
11. 請勿拋擲或強烈衝擊電池	以免引發電池漏液、發熱、破裂、甚至起火
12. 盡量避免電池在高溫，高濕下使用	以免電池過早損壞
13. a. 請在0~40°C的溫度範圍內使用 b. 請在20±5°C的溫度範圍內貯存	a. 不在此範圍內，可能會使電池漏液或發熱，影響電池性能，縮短電池壽命 b. 不在此範圍內，可能會影響電池性能，縮短電池壽命
14. 請勿將新、舊電池混用	以免造成電池過度放電而產生泄放、泄漏和爆炸，及造成人身傷害
15. 請勿與不同類型或牌號的電池混用	以免造成電池發熱、漏液、爆炸、著火
16. 若電子產品長期不用，應將電池從電子產品中取出	以免電池超過貯存期可能發生漏液損壞電子產品
17. 電池耗盡應立即從電子產品中取出	若已放電的電池長時間留在電子產品中，可能發生漏液，造成電子產品損壞及人身傷害
18. 請勿將電池置於嬰幼兒手可觸及的地方	以免誤吞食；萬一吞食，請立即就醫
19. 請勿讓兒童獨立更換電池	以免操作錯誤或發生意外
20. 請在電池規定的貯存期內使用	以免使用過期失效產品
21. 請勿用手直接接觸電池，請戴手指套取電	以免造成電池生銹
22. 請勿使用鐵鉗取電，請使用膠鉗取電	以免造成電池短路、發熱、漏液或爆炸

本公司保留更改產品規格書和任何資料的權力，且無須預先通知。



Ni-MH Rechargeable Battery 鎳氫可充電池

CHUNG PAK GROUP 松栢集團

HEAD OFFICE 總公司

CHUNG PAK BATTERY WORKS LTD.
松栢電池廠有限公司

VINNIC BATTERY WORKS LTD.
銀戰士電池廠有限公司

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松柏（廣東）電池工業有限公司

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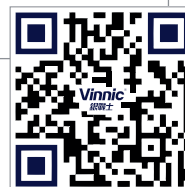
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