

Vinnic[®]

銀戰士電池



Lithium Manganese
Dioxide Battery Series
(High & Low Temperature)

鋰錳電池 (高低溫專用)



Lithium Manganese Dioxide Battery Series (High & Low Temperature)

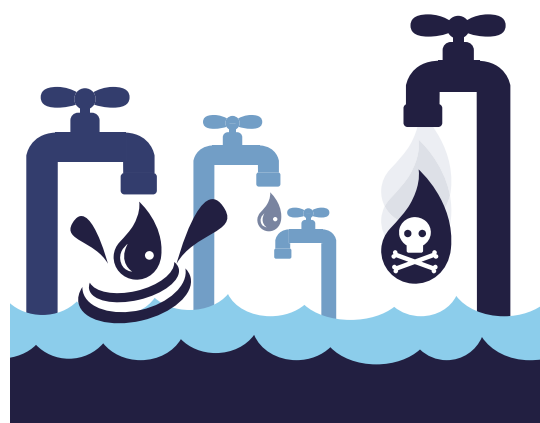
鋰錳電池 (高低溫專用)

- 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% 汞 MERCURY
鉛 LEAD
鎘 CADMIUM

Mercury-free and environment friendly 無汞與環保

Since 2004, Vinnic developed superior Lithium Button Cell 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 Lithium Button Cell are much lower than the standard. This is a further milestone in the development of high performance, reliable and environment friendly batteries.

In response to the market demand, Vinnic has developed and launched High and Low Temperature Lithium Coin on top the current reliable technology in 2021. The batteries are applying for various scenarios, especially giving fabulous performance High and Low Temperature conditions.

Chung Pak has been keen on development of environment friendly batteries for over 40 years. And the fruitful achievement is devoted to our lovely earth, and our next generation.

2004年，銀戰士使用性能超卓的材料并研製出不同的配方，使鋰錳鈕扣性電池無鉛無汞無鎘，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。

因應市場的需求，Vinnic在現有穩定的鋰錳電池技術基礎上，於2021年研發及推出高低溫鋰錳電池。電池在高低溫環境下性能表現更出色，滿足各種使用場景。

為了地球，為了下一代，松栢在過去40多年致力生產無鉛無汞無鎘的環保高性能電池！



Lithium Manganese Dioxide Battery Series (High & Low Temperature)

鋰錳電池 (高低溫專用)



Lithium Manganese Dioxide Battery Series (High & Low Temperature)

鋰錳電池 (高低溫專用)

Main Features 主要特性

Low Temperature Lithium Manganese Dioxide Battery

Suitable for low temperature batteries

Excellent low temperature performance, can be used in -40°C.

Suitable for wide temperature batteries

The battery has a wide temperature range, which can be used in a wide temperature environment of -40~80°C.

Max. Pulse Discharge Current

Excellent high current discharge performance, can be used at a high current pulse requirements.

Application:

- Refrigerated transport
- Storage of Special Medical Products
- Mainly used in cold chain logistics, plateau and other end-products with special requirements in low temperature environment

High Temperature Lithium Manganese Dioxide Battery

Suitable for wide temperature batteries

The battery has a wide temperature range, which can be used in a wide temperature environment of -40~125°C.

* If you want to use CR2032HR cell in environment above 85°C, please consult Vinnic in advance, to understand the service conditions.

Accelerate tolerance

MAX. 2000G

Equivalent to the acceleration attached to the tire of a car with 17 inch wheels going at 300km/h.

Max. Pulse Discharge Current

Excellent high current discharge performance, can be used at a high current pulse requirements.

Application:

- TPMS (Tire Pressure Monitoring System)
- ETC (Electronic Toll Collection System)
- OA equipment (Fax machine, Copier, Printer)
- Set Top Box
- Laptop
- Desktop Computer
- Medical Instrument, Cash register
- FA equipment (Measuring instrument, airborne microcomputer, sensor)
- Electronic instruments (Water, gas, electricity)

Chemical Structure:

Positive Electrode - Manganese dioxide

Negative Electrode - Lithium metal

Electrolyte - Lithium Hexafluorophosphate

低溫鋰錳電池

低溫電池適用

優異的低溫放電性能，可以在-40°C低溫環境中使用。

寬溫電池適用

電池使用溫度範圍廣，可在-40~80°C寬溫環境中使用。

最大脈衝放電電流

優異的大電流放電性能，可以在大電流脈衝要求下使用。

用途:

冷凍運輸
特殊醫療產品的儲存
主要應用於冷鏈、高原等在低溫環境下有特殊要求的終端產品

高溫鋰錳電池

寬溫電池適用

電池使用溫度範圍廣，可在-40~125°C寬溫環境中使用。

* 如果要在超過85°C環境中使用CR2032HR電池，請提前諮詢Vinnic，了解使用條件。

加速耐受能力

最高：2000G
相當於附在一輛以300km/h 速度行駛的17英寸車輛汽車的輪胎上所受的加速度。

最大脈衝放電電流

優異的大電流放電性能，可以在大電流脈衝要求下使用。

用途:

輪胎壓力監測系統
電子收費系統
OA設備 (傳真機、複印機、打印機)
機頂盒
筆記本電腦
桌上型電腦
醫療儀器、收銀機
FA設備 (測量儀器、機載微電腦、傳感器)
電子儀表 (水、燃氣、電力)

化學成份:

正極 - 二氧化錳

負極 - 金屬鋰

電解液 - 有機電解液

Lithium Manganese Dioxide Battery Series (High & Low Temperature)

鋰錳電池 (高低溫專用)

Lithium Manganese Dioxide Battery Series (Low Temperature)

鋰錳電池 (低溫專用)

Specifications 產品規格



Model no. 型號	CR2450LT	CR2032LT	CR1632LT
Nominal voltage (V) 標稱電壓 (V)	3.0V	3.0V	3.0V
Nominal capacity (mAh) 典型容量 (mAh)	570mAh	230mAh	120mAh
Dimension 尺寸 (mm*mm)	24.5*5mm	20*3.2mm	16*3.2mm
Average weight (g) 平均重量 (g)	6.4g	3.1g	2.0g
Operating temperature 使用溫度	-40°C ~ 80°C	-40°C ~ 80°C	-40°C ~ 80°C
Standard discharge current 最大脈衝放電電流	20mA	20mA	10mA



Lithium Manganese Dioxide Battery Series (High Temperature)

鋰錳電池 (高溫專用)

Specifications 產品規格



Model no. 型號	CR2450HR	CR2050HR	CR2032HR	CR1632HR
Nominal voltage (V) 標稱電壓 (V)	3.0V	3.0V	3.0V	3.0V
Nominal capacity (mAh) 典型容量 (mAh)	480mAh	345mAh	210mAh	115mAh
Dimension 尺寸 (mm*mm)	24mm*5.0mm	20mm*5.0mm	20mm*3.2mm	16mm*3.2mm
Average weight (g) 平均重量 (g)	6.4g	4.3g	3.1g	2.0g
Operating Temperature 使用溫度	-40°C ~ 125°C	-40°C ~ 125°C	-40°C ~ 125°C	-40°C ~ 125°C
Standard discharge current 最大脈衝放電電流	20mA	20mA	10mA	10mA





Cross Reference Guide 電池對照表

Model No 型號	DIM(mm) 尺寸	IEC 型號	ANSI 型號	Others 其他
CR2450LT	24.5*5	CR2450	5029LC	ECR2450,DL2450,CR2450C
CR2032LT	20*3.2	CR2032	5004LC	ECR2032,DL2032,CR2032C
CR1632LT	16*3.2	CR1632	-	ECR1632,DL1632,CR1632C
CR2450HR	24.5*5	CR2450	5029LC	ECR2450,DL2450,CR2450C
CR2050HR	20*5	CR2050	-	ECR2050,DL2050,CR2050C
CR2032HR	20*3.2	CR2032	5004LC	ECR2032,DL2032,CR2032C
CR1632HR	16*3.2	CR1632	-	ECR1632,DL1632,CR1632C

Packing Information 包裝資料

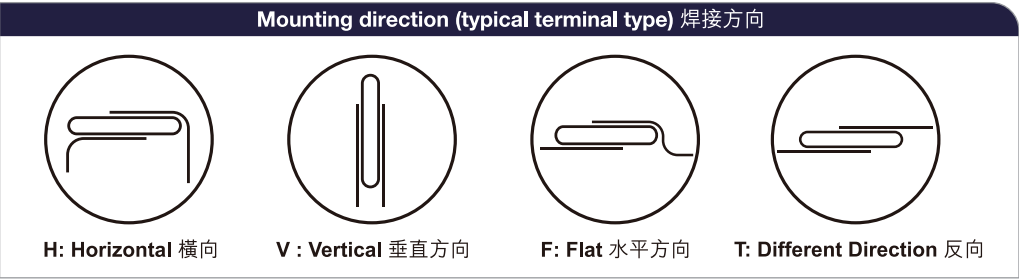
Model No 型號	Standard Packing (pcs) 標準包裝 (電池數量)		Consumer Pack (2pcs/card) 2粒咭裝	
	Bulk Pack 散裝	Carton 外箱	White Box 白盒	Carton 外箱
CR2450LT	20	1120	32	768
CR2032LT	20	2000	76	1824
CR1632LT	20	2000	76	1824
CR2450HR	20	1120	32	768
CR2050HR	20	2000	76	1824
CR2032HR	20	2000	76	1824
CR1632HR	20	2000	76	1824

Lithium Coin Pack
鋰錳組裝電池

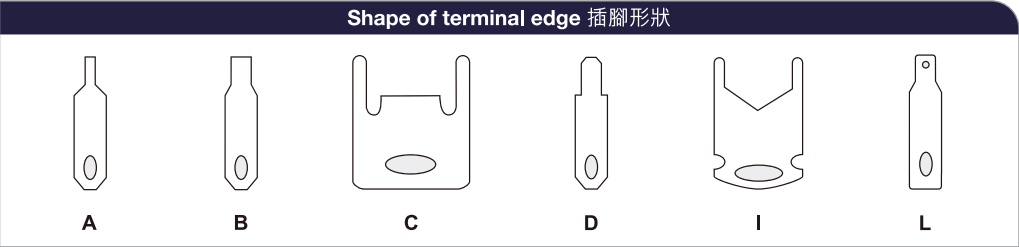
Designation system for Lithium Coin Pack
鋰錳組裝電池型號設定系統

Example 例子 1CR2032/HA2a2I	
1	Number of cells in the battery pack 組裝中所含電池數量
CR2032	Battery type 電池類型
H	Mounting direction 焊接方向代碼
A	Shape of terminal edge - cathode 插腳形狀代碼-正極
2	Serial number - cathode 型號編碼-正極
a	Shape of terminal edge - anode 插腳形狀代碼-負極
2	Serial number - anode 型號編碼-負極
I	With insulation 有絕緣套

Mounting direction (typical terminal type) 焊接方向



Shape of terminal edge 插腳形狀

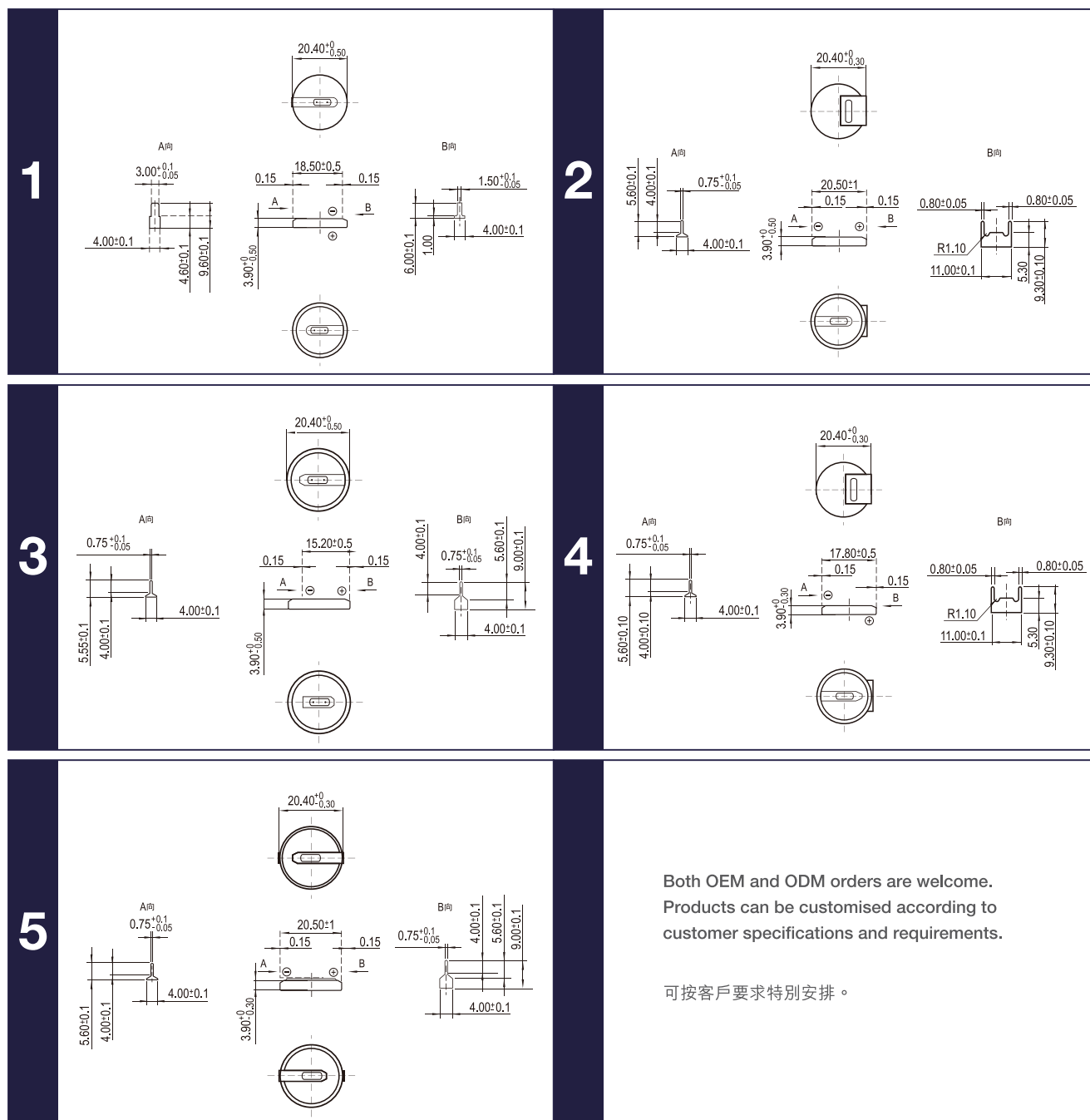


Coin cell tab configurations 組裝規格

型號 Model No	標識類型 Tab Type		圖示號碼 Configuration Diagram No
	有絕緣套With Insulation Wrap	無絕緣套Without Insulation Wrap	
CR2032	-----	/HD1d1	1
CR2032	-----	/HC1a1	2
CR2032	/HA1c1I	-----	3
CR2032	-----	/HC1b2	4
CR2032	/HA1a1I	-----	5

Diagram 圖示

Dimensions/mm (inch) 尺度(英寸)



Lithium Manganese Dioxide Battery Series (High & Low Temperature)

鋰錳電池 (高低溫專用)



Refrigerated transport
冷凍運輸

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 電池使用安全指引

Caution

1. When batteries are overlapped or mixed together in a disorder way, their positive and negative terminals touch each other, causing short circuits. 
2. Similar to the overlapping battery problem, when batteries are put in a metallic container or on a metallic plate, their positive and negative terminals may short circuit through the conductive surface depending on the placement. 
3. When held with a pair of metallic tweezers as shown below, the battery short-circuits through the tweezers. 
4. Use Nickel-plated iron or Nickel-plated stainless steel for the terminals that contact the battery.
5. Make sure that terminal contact pressure is 50g minimum, for a stable contact.
6. Keep the battery and contact terminal surfaces clean and free from moisture and foreign matter.
7. Before inserting the battery, check the battery contact terminals to make sure they are normal, not bent or damaged. (Bent terminals may not make good contact with the battery or may cause short circuit.)
8. When the batteries are piled up in a disorderly way, their positive and negative terminals may short-circuit, consuming some batteries while charging others, causing explosion.
9. Lithium batteries that are almost exhausted can output a voltage that is almost the same as that of a new battery: Please does not judge a battery only with a Voltmeter. Do not mix batteries of different types and brands, or new and used batteries. We are well informed that battery pack should be assembled with single batteries of similar voltage, capacity and inner resistance.
10. Lithium batteries need a period of time to recover their normal voltage after even a slight short circuit. Therefore, if the battery is short-circuited, wait an adequate long time for batteries to recover before measuring their electrical characteristics.
11. Use a high impedance (1M or higher) voltmeter to measure battery voltage.
12. Do not contact terminals with conductive i.e. metal, goods. Keep batteries in non-conductive, i.e. plastic, trays.
13. Reduce impact to insulation layer from vibration, but the dimension will enlarge.
14. Battery characteristics vary with type and grade, even when batteries are the same size and shape. When replacing batteries with new ones, be sure to carefully check the symbols and numbers on them.
15. Keep batteries out of the reach of children. Swallowing coin cells or batteries can cause chemical burns, perforation of soft tissue, and in severe cases can cause death. They need to be removed immediately if swallowed. 
16. Do NOT allow children to replace batteries without adult supervision.
17. DO NOT recharge, short-circuit, disassemble, deform, heat or place the battery near a direct flame. This battery contains flammable materials such as lithium and organic solvent and performing any of the above actions could cause it to ignite explode or become damaged.
18. DO NOT over-discharge the battery. In case the battery is over-discharged when connected with exterior power source or connected with other batteries in series, explosion may occur.
19. When storing a battery or throwing it away, be sure to cover it with tape. If the battery is contacted with other metal objects, it could cause fire or become damaged.
20. Thoroughly read the user's manual before use, inaccurate handling may cause leakage, heat, smoke, explosion, or fire, causing device trouble or injury.
21. Insert the battery with the "+" and "-" ends correctly oriented.
22. If the battery is used together with new batteries, do not use it with a different type battery.
23. Do not solder the battery directly. Protect the welding point and connector.
24. The battery should be preferably stored in dry and cool conditions. Avoid storing the battery in direct sunlight, or in excessively hot and humid place. Storage at high temperature must be avoided to preserve the battery life time.
25. The cell should be preferably stored in dry and cool conditions. For normal storage, the temperature should be between 10°C and 25°C, and should never exceed 30°C. The relative humidity should be 55±20%. Extremes of humidity (over 95%RH and below 40%RH) for sustained periods should be avoided. High temperature or high humidity may cause deterioration of the battery performance or surface corrosion, and detrimental to both batteries and packaging.
26. Button lithium batteries need special method to avoid short-circuiting before and after they are installed. As short circuits tend to occur in the following cases, please take care when handing the batteries.

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

使用注意事項

1. 當電池雜亂地重疊或混合在一起時，它們的正極和負極會相互接觸，導致短路。
2. 與電池重疊問題類似，當電池置於金屬容器或金屬板上時，其正極和負極端子可能會因放置位置不同而通過導電表面短路。
3. 當用一對如下圖所示的金屬鑷子夾住時，電池會通過鑷子短路。
4. 接觸電池端子應使用鍍鎳鐵或鍍鎳不銹鋼。
5. 確保端子接觸壓力最小為50g，以獲得穩定的接觸。
6. 保持電池和接觸端子表面清潔，無水分和異物。
7. 插入電池前，檢查電池接觸端子是否正常，是否彎曲或損壞。(彎曲的端子可能與電池接觸不良或導致短路。)
8. 當電池雜亂堆放時，可能會產生短路、發熱、甚至引起爆炸。
9. 快用完的鋰電池輸出的電壓幾乎與新電池相同，請不要僅用電壓表來判斷電池。請勿混合使用不同型號和品牌的電池，或新舊電池。電池組應該用相同電壓、容量和內阻的單個電池組裝。
10. 鋰電池即使發生輕微的短路，也需要一段時間來恢復正常電壓。因此，如果電池短路，在測量其電特性之前，要等待足夠長的時間讓電池恢復。
11. 使用高阻抗(1M或更高)電壓表測量電池電壓。
12. 請勿將端子與導電金屬、物品接觸。把電池放在不導電的托盤裡。
13. 電池艙尺寸應合適，不宜過松或過緊，避免振動時對電池絕緣層、絕緣件造成破壞。
14. 更換電池時，要用相同牌號，相同類型的新電池同時換掉所有的電池。
15. 電池應放在兒童拿不到的地方。吞食會導致化學灼傷，軟組織穿孔和死亡。萬一誤吞，應立即就醫。
16. 無成人監督時請勿讓兒童更換電池。
17. 請勿充電、短路、拆卸、變形、加熱或將電池置於接近火源的地方。
這種電池含有易燃材料，如鋰和有機溶劑，執行上述任何動作都可能導致其點燃爆炸或損壞。
18. 不要過度放電電池。當電池與外部電源連接或與其他電池串聯時發生過放電，可能發生爆炸。
19. 當儲存或扔掉電池時，一定要用膠帶把它蓋上。如果電池與其他金屬物體接觸，可能會引起火災或損壞。
20. 使用前請仔細閱讀使用說明書，不正確的操作可能導致洩漏、發熱、冒煙、爆炸或火災，造成設備故障或損傷。
21. 按電池及用電器標明的極性標誌(+和-)正確裝入電池。
22. 不要將新舊電池或不同類型或牌號的電池混用。
23. 不要直接焊接電池。
24. 電池最好存放在乾燥和涼爽的環境中。避免將電池存放在陽光直射的地方，或過熱潮濕的地方。為了保證電池的使用壽命，必須避免高溫儲存。
25. 電池最適宜儲存於乾燥和涼爽的環境中。正常的貯存溫度應在10℃~25℃之間，不應當超過30℃。相對濕度應在55±20%。
應避免長時間處於極端濕度(相對濕度高於95%或低於40%)下。高溫或高濕可能會損害電池性能或造成電池表面腐蝕，對電池和包裝都有害。
26. 鈕型鋰電池安裝前後需要特殊方法以避免短路。由於下列情況下容易發生短路，請在處理電池時小心。



**POWERED
BY PROFESSIONALS**
專業力量 專心為你

Lithium Manganese Dioxide Battery Series (High & Low Temperature) 鋰錳電池 (高低溫專用)

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.**
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