

**Ordinary Zinc-Manganese Dry Battery
Technology Specification**

普通锌-锰干电池技术规格

Model: R6

产品型号: R6

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1 Scope 范围

This specification defines the technical requirements for R03 cells distributed by South Large. If not otherwise specified, the technical requirements and dimensions for cells should meet or exceed the requirements of GB/T 8897.1-2008, GB 8897.2-2008 该份规格书规定了苏州南方钨大 R03 锌锰干电池的技术要求. 如果没有列出其它详细要求，电池技术要求和尺寸应该满足或高于GB/T 8897.1-2008 和GB 8897.2-2008.

2 Reference documents 引用标准

GB8897.1-2008(IEC60086-1:2000, IDT) Primary batteries-Part 1:General 原电池 第1部分:总则
GB8897.2-2008(IEC60086-2:2001, MOD) Primary batteries-Part 2:Physical and technological specifications 原电池 第2 部分:外形尺寸和技术要求
GB8897.5-2006(IEC 60086-5:2005, MOD)Primary batteries-Part 5:Safety of batteries with aqueous electrolyte 原电 池 第5 部分 水溶液电解质电池的安全要求

3 Chemical systems , voltages and designation 电化学体系,电压和命名

- 3.1. Chemical systems 电化学体系:Zinc-manganese battery 锌锰电池
- 3.2. Nominal voltage 标称电压:1.5V
- 3.3. Designation 命名

IEC&GB(China): R6; ANSI Number: AA; Japan: UM-3 IEC及GB（中国）命名: R6; 美国通俗命名:AA; 日本命名: UM-3。

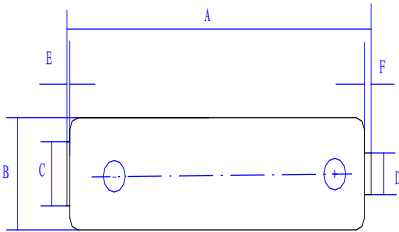
4 Battery Weight 电池重量

Battery Weight 电池平均重量: 13.5±0.5g (Avg.)

5 Battery Dimensions电池尺寸

The batteries meet dimensions of the following attached drawing 电池符合以下简图要求.

外形尺寸	最大	最小
A	50.5	49.2
B	14.5	13.5
C	--	7.0
D	5.5	--
E	0.5	--
F	--	1.0





6 Voltage open 开路电压

Item 项目	OCV 开路电压(V)
Initial Period 初始期 (3个月内)	$1.610 \leq OCV \leq 1.725$
12 M Storage 贮存12个月	≥ 1.58

OCV measurement: The inner resistance of Voltage Metre is above $1M\Omega$ 开路压测试:准确度应不低于 $\pm 0.25\%$, 精度应不低于最后一位有效数值的50%, 内阻应不小于 $1M\Omega$ 。

7 Service Life放电条件及时间:

Table 1 表1

Discharge conditions 放电条件			MAD 最小平均放电时间	
Load 电阻 (Ω)	Discharge 放电方式	EPV 终止电压 (V)	Initial Period 初始期	Delayed discharge performance after 12 months 常温贮存12个月
3.9 Ω	24H/D	0.9V	60MIN	48MIN
43 Ω	4H/D	0.9V	21H	16.8H
3.9 Ω	1H/D	0.8V	1.3H	1.0H
10 Ω	1H/D	0.9V	4.0H	3.2H
24 Ω	15S/M,8H/D	1.0V	10H	8.0H
1.8 Ω	15S/M,24H/D	0.9V	85 次	68 次

Initial Period 初始期:60 days after production 生产后60 天内 Test condition: $20 \pm 2^\circ\text{C}$ and $60 \pm 15\%RH$
测试条件: $20 \pm 2^\circ\text{C}$ 相对湿度 $60 \pm 15\%$

8 Leakage Resistance 防漏液性能要求

Table 2表2

Item 项目	Test conditions 测试条件	Sample size 测试数量	Requirements 要求	Acceptance Criteria 验收标准
Over discharge 过放电	3.9 Ω 24h/d EPV=0.6V at $20 \pm 2^\circ\text{C}$ 在 $20 \pm 2^\circ\text{C}$ 下负载3.9 Ω 连放至0.6V	n=9pcs	No leakage 不漏液	Ac=0, Re=1
45 $^\circ\text{C}$ Storage 45 $^\circ\text{C}$ 高温干贮存	Stored for 20days at $45 \pm 2^\circ\text{C}$ 45 $\pm 2^\circ\text{C}$ 高温干燥条件下贮存20 天	n=20pcs	No leakage 不漏液	Ac=0, Re=1



9 Safety Requirement 安全性能要求

Table 3 表3

Item 项目	Test conditions 测试条件	Test number 测试数量	Requirements of IEC60086-5:2005& GB8897.5-2006 要求	Acceptance Criteria 验收标准
Partial Use 部份放电后 贮存	Stored at $45\pm 2^{\circ}\text{C}$ for 30days after undischarged batteries were test discharged $3.9\ \Omega$ 24h/d, EPV=1.0V. $3.9\ \Omega$ 连放至终止电压1.0V 后, 再在 $45\pm 2^{\circ}\text{C}$ 条件下贮存30 天	n=5pcs	No leakage; No explosion 不漏液, 不爆炸	Ac=0, Re=1
External short circuit 外部短路	Connect the positive and negative terminals of each undischarged battery by a wire to remain on test for 24h or until the temperature of the case returns to ambient. 未经放电的电池直接短路24h 或至电池外壳温度降至室温	n=5pcs	No explosion 不爆炸	Ac=0, Re=1
电池不正确安装	4节来源相同的电池串联, 其中1节电池反向连接	n=5pcs	No explosion 不爆炸	Ac=0, Re=1

10 Inspection rules 检验规则

10.1 Deliver inspection: Depending on GB2828 交收检验:依据GB2828.1-2003

Table 4表4

Number	Test 试验项目	Item 条款	IL	AQL
1	Dimensions 外形尺寸	5	S-2	0.65
2	Appearance 外观		I	2.5
3	Discharge capacity 放电容量	7		
4	Open-circuit voltage 开路电压	6	S-3	0.65

Routine inspection: Depending on GB2829 例行检验:依据GB2829

11 Inspection for service output 容量检验:

- 11.1 9 samples shall be tested for service output 样品数为9 只
- 11.2 If the average value is equal to or more than the value of table 1, and if the number of batteries showing a value less than 80% of the value of table 1 is 1 or less. The batteries are considered to conform to the requirement. 当平均放电容量不低于表1 所规定的标准值, 且低于标准值80%的电池数不大于1时, 判定电池容量合格。
- 11.3 If the average value less than the value of table1, or if the number of batteries showing a value less than 80% is 2 or more, the test shall be repeated with other 9 pieces. At the second test, if the average value is equal to or more than the value of table 1, and if the number of batteries showing a value less than 80% of the value of table 1 is 1 or less, these batteries are considered to conform to the requirement. 当平均放电容量低于表1 所规定的标准值, 或低于标准值80%的电池数大于1 时, 重新取9 只样品进行试验, 若平均放电容量不低于表1所规定的标准值, 且低于标准值80%的电池数不大于1时, 判定电池容量合格。
- 11.4 At above second test, if the average value is less than the value of table 1, or if the number of batteries showing a value less than 80% of the value of table 1 is 2 or more, the batteries are considered not to conform to the requirement. Third test shall not be performed. 若第二次试验中平均放电容量低于表1 所规定的标准值, 或低于标准值80%的电池数大于1时, 判定电池容量不合格, 不再进行第三次试验。

12 Description of hazardous substances content有害物质含量说明

序号	Heavy Metal重金属	Content含量 (%)	Remark备注
1	Hg (汞)	<0.0001%	
2	Cd (镉)	<0.002%	
3	Pb (铅)	<0.004%	
4	Pb (铅)	<0.1%	garbage can with "Pb" mark on the jacket商标上 Pb的垃圾桶标志

注: Pb (铅) 含量一般按序号“4”内容操作控制, 有特殊要求的按“3”操作执行。

13 Instructions for use 使用说明

- 12.1 Always select correct size and grade of battery most suitable for intended use. 选择最合适的电池(尺寸和型号)用于某种指定的用途;
- 12.2 Replace all batteries of a set at the same time 同时更换一组电池中的所有电池;
- 12.3 Clean the battery contacts and also those of the equipment prior to battery installation 电池装入器具前应清洁电池和电器具的电接触件;
- 12.4 Ensure that batteries are installed correctly with regard polarity(+ and -) 确保按极性(+和-)正确装入电池;
- 12.5 Remove batteries from equipment which is not be used for an extend period of time 长时间不使用电池时应取出电池;
- 12.6 Remove exhausted batteries promptly 及时从用电器具中取出电量已耗尽的电池。

14 Display and storage陈列和贮存

- 13.1 Batteries shall be stored in well-ventilated dry and cool conditions 电池应贮存在通风良好, 阴凉干燥处。
- 13.2 Battery cartons should not be piled up in several layers, or should not exceed a specified

height 电池箱不应层叠, 或不应超过规定的高度.

13.3 Batteries should not be exposed to direct sun ray for a long time or placed in areas where they get wet by rain. 电池不应当长时间暴露在阳光直射处或放于雨淋处.

13.4 Do not mix unpacked batteries so as to avoid mechanical damage and/or short circuit among each other 不要将去掉包装的电池混堆在一起.

15 Storage life 保存期限

Storage life of batteries are two years long at $20\pm 2^{\circ}\text{C}$ and RH $60\pm 15\%$ 在 $20\pm 2^{\circ}\text{C}$, 相对湿度 $60\pm 15\%$ 贮存条件下, 保存期限为2 年.

16 Marks 标识

15.1 Designation 型号;

15.2 and month of manufacture, which may be encoded, or the expiration of a guarantee period in clear 保质期的截止期限或制造年, 月;

15.3 Polarity of terminals 正极和负极;

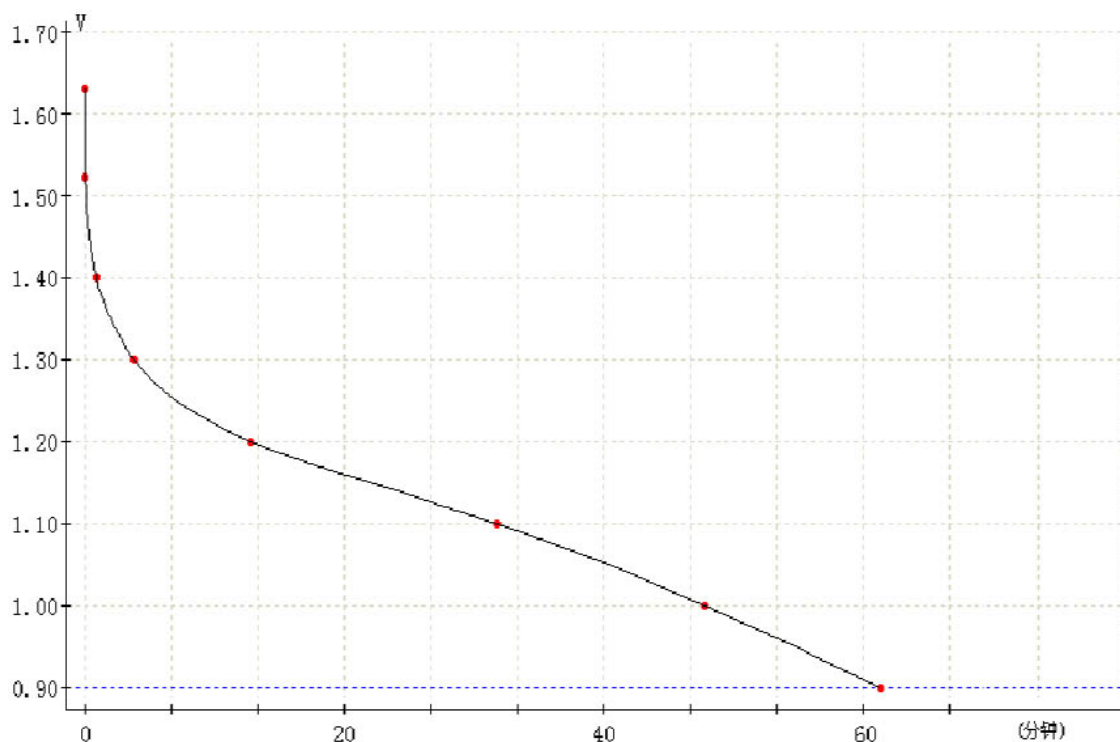
15.4 Nominal voltage 标称电压;

15.5 Mercury content 含汞量(适用时);

15.6 Name or trade mark, manufacturer or supplier 商标, 制造商名称;

15.7 Cautionary advice 安全使用注意事项.

17 TYPICAL DISCHARGE CHARACTERISTICS Marks 典型放电特征图



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