

ENGINEERING SPECIFICATION

Product: R03P, Zn/MnO₂,1.5Volts

Date: March 9, 2005

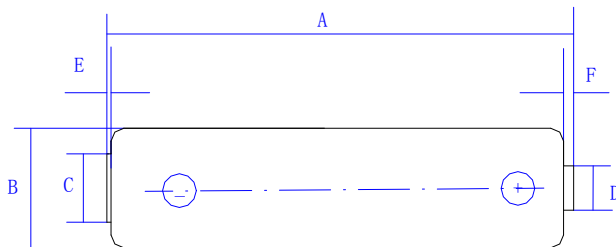
SCOPE :

This specification defines the technical requirements for dry cells distributed by BAO TONG. If not otherwise specified, the cells should meet or exceed the requirements of **IEC 60086-1,2**

If not otherwise specified in the drawing, the cell shall meet the dimensional requirements of standards listed in the scope.

1. Dimensions

in accordance with attached drawing.



Dimensions	max	min
A	44.5	43.3
B	10.5	9.5
C	--	4.3
D	3.8	--
E	0.5	--
F	--	0.8

2. Electrical Requirement

O.C.V. Min 1.500V Max 1.725V

C.C.V. ≥ 1.450V After 0.2sec±0.01sec by R=5.0Ω

3. Service Life:

3.1

Load Resistance (±0.5%)	3.9 Ohms			
Cycle Time	24h/d			
Cutoff Voltage	0.9Volt			
Storage Condition	+20°C±2°C and 60±10%RH			
Minimum Average Duration	<30days	12 months	24months	36months
	30 min	25.5 min	24 min	

3.2

Load Resistance (±0.5%)	3.6 Ohms			
Cycle Time	15s/min 24h/d			
Cutoff Voltage	0.9Volt			
Storage Condition	+20°C±2°C and 60±10%RH			
Minimum Average Duration	<30days	12 months	24months	36months
	175 cycles	150cycles	140 cycles	

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3.3

Load Resistance (±0.5%)	5.10hms			
Cycle Time	4min/h 8h/d			
Cutoff Voltage	0.8Volt			
Storage Condition	+20 °C±2 °C and 60±10%RH			
Minimum Average Duration	<30days	12 months	24months	36months
	75 min	64min	60 min	

3.4

Load Resistance (±0.5%)	750hms			
Cycle Time	4h/d			
Cutoff Voltage	0.9Volt			
Storage Condition	+20 °C±2 °C and 60±10%RH			
Minimum Average Duration	<30days	12 months	24months	36months
	24hours	20hours	19hours	

3.5

Load Resistance (±0.5%)	10 Ohms			
Cycle Time	1h/d			
Cutoff Voltage	0.9Volt			
Storage Condition	+20 °C±2 °C and 60±10%RH			
Minimum Average Duration	<30days	12 months	24months	36months
	2.6hours	2.2hours	1.8hours	

4. Leakage Resistance

4.1 High heat and humidity storage test

High Temperature Exposure

When exposed to a temperature of **60 ±2 °C**
 for a period of **20 days**
 no leakage shall occur during the test

5. Safety Requirement

5.1 Short Circuit Test

When a continuous short circuit is applied to the cell terminals at Standard Environment, the case temperature must not exceed the specified limit and no explosion may occur.- Leakage is tolerable

5.2 Safety Vent Test

When 4 cells are connected in series with a load resistor and one of the 4 cells is connected with reverse polarity no explosion may occur. - The safety valve must operate
 Test Duration

**10 Ohms
24 hours**

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5.3 Forced Over Discharge Test

When one drained cell is connected in series with 3 fresh cells and a load resistor, no explosion may occur. - Leakage is tolerable.
The drained cell is prepared by discharging a fresh cell through a 3.9 Ohm resistor until its CCV reaches 0.9 V
Test Duration

10 Ohms
3 days

6. Heavy Metal Contents

The heavy metal contents of the cell shall conform to
Mercury limit (per cell weight)
Cadmium limit (per cell weight)

1 ppm max
80ppm max