

# Rechargeable Battery AAA / HR03



## 1. Scope:

This specification is applicable to RND 305-00021 Nickel-Metal Hydride Cylindrical Cell.

## 2. Law & Regulation Compliances:

Packaging materials comply with EU's directive on packaging materials and waste (94/62/EC)

## 3. General:

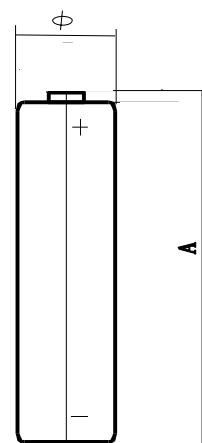
3.1 Chemical system: Ni /KOH-H<sub>2</sub>O/ MH

3.2 Nominal voltage: 1.2 V

3.3 Weight: Approximate 12.9g

3.4 Dimension (mm):

/	min	max
Φ	9.8	10.5
A	43.3	44.5



3.6 Norminal Capacity: 950mAh

Remark: Discharged at 0.2C<sub>5</sub>, 24h/d, 20±5°C, e.v.= 1.0V

3.7 Operation temperature: : Charge 0°C~45°C, Discharge -20°C~60°C  
Recommend storage temperature : -20°C~ 35°C

## 4. Electrical Characteristics:

Unless otherwise stated, all measurements are to be performed at a **Standard Environment** of

**20 ± 2°C**  
**55± 20%RH.**

All samples are normalized for 8 hours at least at the above environment prior to measurement.

The digital voltmeter (DCM) is with the precision of 1mV (internal resistance not less than 1 Megohm). Notes: Standard Charge/Discharge Condition:

Charge: 0.1C<sub>5</sub> mA ×16hrs  
e.g. HR03 95: Charge: 95mA ×16hrs

Discharge: 0.2C<sub>5</sub> mA to 1.0V/cell  
Discharge: 190mA to 1.0V/cell

## 4.1 Performance:

Test	Unit	Specification	Condition	Remarks
Open Circuit Voltage (OCV)	V	≥1.25	Within 1hr after standard charge	Unit cell

## 4.2 Service Performance:

Test	Unit	Specification	Condition	Remarks
Standard Discharge (0.2C <sub>5</sub> )	minute	≥300	Standard Charge , 1hr rest before discharge	Up to 3 cycles are allowed.The test shall be terminated at the end of the first cycle which meets the requirement
High Rate Discharge (1C <sub>5</sub> )	minute	≥48	Standard Charge , 1hr rest before discharge	
Charge Retention	mAh	≥475 (50%C <sub>5</sub> )	Standard charge Storage 12 months at 20°C Standard discharge	
IEC Cycles Test	Cycle	≥500	IEC 61951-2	(see note 3)

## **5. Security Characteristics:**

### 5.1 Short-circuit explosion-proof characteristics:

Samples: 10pcs

Test conditions: After standard charge. short circuit the cell at 20+/-2°C until the cell temperature returns to ambient temperature.(The resistance of the inter-connecting circuitry shall not exceed 0.1 ohm.)

Requirement: No fire and No explosion; Leakage/deformation is allowable.

Criterion: 0/10

## **6. Caution:**

1. Batteries should be charged prior to use
2. For charging methods please referred to our technical handbook
3. Use the correct charger for Ni-Cd or Ni-MH batteries
4. Do not reverse charge batteries
5. Do not subject batteries to adverse condition such as extreme temperature, deep cycling and excessive over charge/over discharge.
6. Avoid batteries being used in an airtight compartment. Ventilation should be provided inside the battery compartment, otherwise batteries may generate hydrogen gas, which could cause an explosion if exposed to an ignition source
7. Do not attempt to take batteries apart or subject them to pressure or impact. Heat may be generated or fire may result. The alkaline electrolyte is harmful to eyes and skin, and it may damage clothing upon contact.
8. Keep away from children. If swallowed, contact a physician at once.
9. Do not short circuit batteries, permanent damage to batteries may result
10. Do not incinerate or mutilates batteries, may burst or release toxic material.
11. Do not solder directly to cells or batteries.
12. Store batteries in a cool dry place.
13. If find any noise, excessive temperature or leakage from a battery, please stop its use.
14. When using a new battery for the first time or after long term storage, please fully charge the battery before use
15. When using a new battery in use with semi-used batteries, over-discharge may occur.
16. Do not mix new batteries in use with semi-used batteries, over-discharge may occur.
17. When connecting a battery pack to a charger, ensure correct polarity.
18. When the battery is hot, please do not touch it and handle it, until it has cooled down.
19. Do not remove the outer sleeve from a battery pack nor cut into its housing.
20. When find battery power down during use, please switch off the device to avoid over discharge.
21. Unplug a battery by holding the connector itself and not by pulling at its cord.
22. After use, if the battery is hot, before recharging it, cool it in a well-ventilated place out of direct sunlight.
23. Never put a battery into water or seawater

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- Notes:
1. Ta: Ambient Temperature.
  2. Approximate charge time from discharged rate, for reference only.
  3. IEC61951-2 Cycle Life Test:

Cycle No.	Charge	Rest	Discharge
1	0.1C <sub>5</sub> ×16hrs	none	0.25 C <sub>5</sub> ×2hrs20mins
2-48	0.25C <sub>5</sub> ×3hrs10mins	none	0.25 C <sub>5</sub> ×2hrs20mins
49	0.25C <sub>5</sub> ×3hrs10mins	none	0.25 C <sub>5</sub> to 1.0V/cell
50	0.1C <sub>5</sub> ×16hrs	1-4hr(s)	0.2 C <sub>5</sub> to 1.0V/cell
Cycle 1 to 50 shall be repeated until the discharges duration on any 50th cycle becomes less than 3hrs			

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