



TECHNICAL SPECIFICATION FOR NI-MH AA1700

Specification No.	AA1700-00	Version	00
		Page	/5

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	Name	Title	Date	Signature
Customer Approval				



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Specification No.	AA1700-00	Version	00
		Page	/5

1. APPLICATION

This specification applies to the Nickel-Metal Hydride batteries of Model :

AA1700 for Consumer AA

2. ASSEMBLY & DIMENSIONS

As Exhibit 1 drawing

3. RATINGS

Item	Specification	Conditions and Remarks (Temperature is 20 °C ± 5 °C except specified)
3.1 Nominal Voltage	1.2 V/cell	
3.2 Nominal Capacity	1700 mAh	
3.3 Minimum Capacity	1650 mAh	
3.4 I_r , A	1650 mA	
3.5 Standard Charge	165mA * 16 hours	
3.6 Discharge Cut-off Voltage	1.0 V/cell	
3.7 Operating Temperature		
— Charge	0 °C to 45 °C (Charge current 200 mA)	
— Discharge	-20 °C to 65 °C	
— Weight	About 25 g/cell	
3.8 Storage Temperature		
— Within 1 month	-20 °C to 50 °C (Humidity ≤ 85%)	
— Within 3 months	-20 °C to 40 °C (Humidity ≤ 85%)	
— Within 1 year	-20 °C to 35 °C (Humidity ≤ 85%)	

Specification No.	AA1700-00	Version	00
		Page	/5

4. TEST METHOD & PERFORMANCE

Item	Specification	Conditions and Remarks (Temperature is 20 °C ± 5 °C except specified)
4.1 Test condition	Ambient temperature: 20 °C±5 °C Ambient humidity: 65%±20%	The test is carried out with new batteries (within a month after delivery or after testing the capacity)
4.2 Standard Charge		–Discharge at 0.2 I _r A until 1.0 V/cell –Charge at 0.1 I _r A for 16 hours (at 20 °C±5 °C)
4.3 Standard Discharge		–Discharge at 0.2 I _r A until 1.0 V/cell (at 20 °C±5 °C)
4.4 Open Circuit Voltage	≥ 1.25 V/cell	Checked with 1000 Ω/V within 7 days after Standard Charge
4.5 Capacity	The discharge time should be more than 5 hours	–Standard Charge –1 hour Rest –Standard Discharge (5 cycles is permitted.)
4.6 Internal Impedance	≤40 mΩ/cell	At 1 kHz within 1 hour after Standard Charge
4.7 High Rate Discharge	The discharge time should be more than 48 minutes	–Standard Charge –1 hour Rest –Discharge at 1 I _r A until 1.0 V/cell (5 cycles is permitted.)
4.8 Low Temperature Discharge (at 0 °C±2 °C)	The discharge time should be more than 4 hours	–Standard Charge –16~24 hours Rest at 0 °C±2 °C –Discharge at 0.2 I _r A until 1.0 V/cell at 0 °C±2 °C (5 cycles is permitted.)
4.9 Capacity Retention (at 20 °C±2 °C)	The discharge time should be more than 4 hours	–Standard Charge –Store with Open Circuit for 28 days at 20 °C±2 °C –Standard Discharge
4.10 Capacity Recovery (at 20 °C±2 °C)	The discharge time should be more than 4.5 hours	–Standard Charge –Store with Open Circuit for 1 years at 20 °C±2 °C –Discharge at 0.2 I _r A until 1.0 V/cell (5 cycles is permitted.)
4.11 Cycle life	≥500 cycles	See the note 1
4.12 Leakage	No leakage (by eyes)	–Standard Charge –Store at 33 °C ±2 °C and Humidity 80% for 14 days



TECHNICAL SPECIFICATION FOR NI-MH AA1700

Specification No.	AA1700-00	Version	00
		Page	/5

5. SAFETY TESTS

Item	Specification	Conditions and Remarks (Temperature is 20 °C ± 5 °C except specified)
5.1 Overcharge	Store for 5 hours, No leakage, No disrupt (by eyes)	-Charge 0.1 I _t A * 48 hours after Standard Charge -1 hour Rest
5.2 Reverse-Charging	No disrupt, Leakage of electrolyte and deformation of the cell are acceptable	-Standard Discharge -Incorrect Polarity Charge 1 I _t A * 1 hour
5.3 Short-Circuit	No disrupt, Leakage of electrolyte and deformation of the cell are acceptable	-Standard Charge -Short-circuit with Shortest Wire (AWG 18#)

6. MECHANICAL TEST

6.1 Shock	No leakage, No disrupt, No obvious deformation (by eyes) No short-circuit, Nominal voltage ≥ 1.2 V/cell	-Standard Charge -1 drop along each direction of the 3 mutually perpendicular axes from 1.00 m to the hardwood
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7.ACCEPTABLE QUALITY LEVEL (AQL)

The inspection shall be in accordance with the following method.

(ref. ISO2859-1:1999 or GB/T 2821.1-2003)

NO	Inspection item	Number of samples	Allowable number of defective cells
1.	Outer appearance	Level I	AQL=1.5
2.	Dimensions	Level I	0.65
3.	Function*	Level I	0.4

* Include : Capacity, 1 I_tA-rate, O.C.V., Internal impedance

8. WARRANTY

8.1 This product is warranted for a period of one year from date of shipment.

8.2 During the warranty period , YUASA (TIANJIN) THCHNOLOGY LTD.(YTTL) will replace
products which prove to be design or manufacture defects.

9. OTHERS

Please consult YTTL if you have any doubt on the content of this specification, and this specification
will be changed or revised if necessary.



TECHNICAL SPECIFICATION FOR NI-MH AA1700

Specification No.	AA1700-00	Version	00
		Page	/5

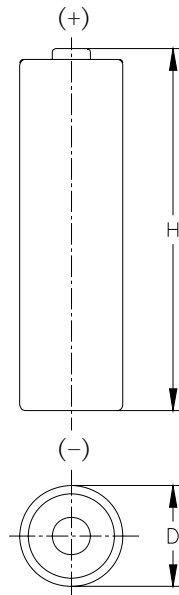
Note 1: Standard Cycle life

Cycle number	Charge	Stand in charged condition	Discharge
1	165 mA for 16 hrs	None	413 mA for 2 hrs 20 mins
2~48	413 mA for 3 hrs 10 mins	None	413 mA for 2 hrs 20 mins
49	413 mA for 3 hrs 10 mins	None	413 mA to 1.0 V/cell
50	165 mA for 16 hrs	1 h to 4 hrs	330 mA to 1.0 V/cell

50 cycle test as per above table is repeated. The discharge time of the 100th, 150th, 200th, 250th, 300th, 350th, 400th should be more than 3 hours respectively.

Exhibit 1

Jacketed cylindrical cells interchangeable with primary batteries



Designation	Diameter(mm)	Height (mm)	Top shape
	D	H	Button
AA	14.5 ⁺⁰ _{-0.7}	49 ⁺⁰ _{-1.5}	