

Name: Rechargeable Cylindricall Cell (Ni-MH)

Model: AKYGA NM-R20-100M

SPEC: 1.2V / 10000mAh

#### **Specification Modification Records**

Modification Time	Descriptions	Issued Date	Approved By
	Release 1	2023-03-13	

Content

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#### 1. SCOPE

This specification governs the performance of the following pkcell Nickel-Metal Hydride Cylindrical Cell and its stack-up batteries.

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The data involving nominal voltage and the approximate weight of stake-up batteries shall be equal to the value of the unit cell multiplied by the number of unit cells in the battery.

Nominal voltage of unit cell = 1.2V

### 2. RATINGS

Description	Unit	Specification	Conditions	
Nominal Voltage	V	1.2		
Nominal Capacity	mAh	10000	Standard Charge/discharge	
Minimum Capacity	mAh	9500	Standard Charge/discharge	
Ctondand Chance	mA	1000(0.1C)	Ta=0~45°C	
Standard Charge	hour	14-16		
	mA	5000(0.5C)	-ΔV=5~10mV/PCS Timercutoff=110%input -2-	
Fast Charge	hour	2.2approx	capacity Temp.cutoff=55°C Ta=10~45°C	
Trickle Charge	mA	500(0.05C) ~ 1000(0.1C)	Ta=0~45 °C	
Discharge Cut-off Voltage	V	1.0	Ta=-20~55℃	
Maximum Discharging Current	mA	6000	Ta=10~45°C	
Storage Temperature	$^{\circ}$	-20~35°C	Discharge state	

#### 3. PERFORMANCE

Unless otherwise stated, tests should be done within one month of delivery under the following conditions:

Ambient Temperature: Ta=20±5°C Relative Humidity: 65±20% Standard Charge/ Discharge Condition:



Charge: 1000mA(0.1C)×16hrs

Discharge: 2000mA(0.2C) to 1.0V/cell

### Table 1

Test	Unit	Specification	Conditions	Remarks
Capacity(0.2C)	min	≥290	Standard Charge/Discharge	Up to 3 cycles are allowed
Open Circuit Voltage (OCV)	V	≥1.25	Within 1hr after standard charge	
Internal Impedance (Ri)	mΩ	≤15	Upon fully charge(1kHz) (1kHz)	
High Rate Discharge (0.5C)	min	≥108	Standard Charge,1hr rest before discharge	
High Rate Discharge (1C)	min	≥54	Standard Charge, 1hr rest before discharge	
Overcharge	N/A	No leakage nor explosion	1000mA(0.1C) charge 48 hours	
Charge Retention	mAh	≥7000(70%)	Standard Charge, Storage: 7 days at 45°C,0.2C Standard Discharge	- 3 -
IEC Cycles Test	Cycle	≥500	IEC61951-2 (2003)	

### Table 2

Test	Unit	Specification	Conditions
Leakage	N/A	No leakage nor	Full charged at (0.1C) stand for 14
		deformation.	days
Short Circuit	N/A	Leakage & deformation	After standard charge, short circuit
		may occur, but no	for 1 hour(leading
		explosion is allowed.	wire= $0.75$ mm $^2 \times 20$ mm)
			Charge the battery 0.1C 16hrs,the
Vibration Resistance	N/A	Change of voltage	n leave for 24hrs. check battery b
		$\Delta V < 0.02V$ ,	efore / after vibration.
		Change of internal	Amplitude:1.5mm
		Impedance $\Delta Ri < 5 \text{ m}\Omega$ .	Vibration:3000CPM
			Any direction for 60mins.



Impact Resistance	N/A	Change of voltage $\Delta V < 0.02V$ , Change of internal Impedance $\Delta Ri < 5 \text{ m}\Omega$ .	Charge the battery 0.1C 16hrs,then leave for 24hrs. (check battery before / after) dropped, Height:50cm,Wooden board(thickness 30mm)Direction not specified 3 times.
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#### 4. CONFIGURATION, DIMENSIONS AND MARKINGS

Please refer to the attached drawing.

#### 5. EXTERNAL APPEARANCE

The cell/ battery shall be free from cracks, scars, breakage, rust, Discoloration, leakage nor deformation.

### 6, CAUTION

- ◆.Reverse charging is not acceptable
- ◆.Do not burthen current when charging.
- ◆.Do not charge/discharge with more than the specified current.
- ◆.Do not short circuit the cell/ battery. Permanent damage to the cell/ battery may result.
- ◆. Do not incinerate or mutilate the cell/ battery.
- ◆.Do not subject batteries to adverse conditions like: extreme temperature, deep cycling and excessive Overcharge/overdischarge. The life expectancy may be reduced.
- ◆.Store the cell/battery in a cool dry place. Always discharge the cell/battery before bulk storage or shipment.
- ◆. Cycle(charge and discharge) the battery every 6-9months to maintain cell/battery performance when being stored for an extended period of time.
- ◆.Keep away from children. If swallowed, contact a physician at once.
- ◆. Avoid airtight battery compartments. Ventilation should be provided in the plastic case of batteries, otherwise oxygen and hydrogen gas generated inside can cause explosion when exposed to fire sources such as motors or switches.

## 7. Dimensions of the battery:



