TECHNICAL SPECIFICATION

1. Scope:

This specification governs the performance of the following Powercell Nickel-Metal Hydride cylindrical battery.

2. Powercell model: AA2500

3. External appearance

The cell / battery shall be free from cracks, scars, breakage, rust,discoloration, leakage and deformation.

4. Ratings

The data involving the nominal voltage and the approximate weight of the battery pack.

Description	Unit	Specification	Conditions
Nominal Voltage	V	1.20	Unit：cell
Nominal Capacity	mAh	2500	Standard charging / discharging
Rated Capacity	mAh	2450	Standard charging / discharging
Standard Charge	mA	250 (0.1C)	Ambient temperature (Ta) = 0–45°C
	hour	16	
Quick Charge	mA	2500(1.0C) With charge termination control	-△V=5~8mv/ cell Timer cutoff=120% input capacity Temp. cutoff= 45~50℃, Ta= 0~40℃ dT / dt=0.5~1.0℃/ min
	minute	72 approx.(1.0C)	
Trickle Charge	mA	125(0.05C)	Ambient temperature (Ta) = 0–40°C
Discharge Cut-Off Voltage	V	1.0	Less than0.5C discharge
	V	0.9	0.5C~2.0C discharge
Maximum Dischargeing Current(mA)	mA	5000 (2.0C)	Ta= 0~50℃
Storage Temperature (Percent40-60charged state)	℃	-20~+40	Less than 30 days
		-20~+30	Less than 90 days
		-20~+25	Less than 180 days
	%	65±20RH	Relative humidity
Typical Weight	g	28	Approx.

Our company reserves the right to alter or amend the design, model and specification without prior notice

5. Performance

Unless otherwise stated, tests should be done within one month of delivery under the following conditions:
Relative humidity: 65±20% RH
Ambient Temperature: 20±5℃
Notes:Standard charge / discharge condition

- Charge: 250 mA (0.1C) x 16 hrs
- Discharge: 500mA (0.2C) to 1.0V/cell

The batteries must be standard discharged before charging
Battery test vide infra

Test	Unit	Specification	Conditions	Remarks
Capacity	mAh	≥2450	Standard Charge / Discharge	Up to 3 cycles Allowed
Open Circuit Voltage (OCV)	V	≥1.35	Within 1 hr after standard charge	Unit：cell
Internal Impedance (Ri)	mΩ	≤35	Upon fully charge at 1Khz	Unit：cell
Rapid discharge (0.5C)	min	≥114	Standard charge, 30min rest before discharge at 0.5C to 1.0V/cell	Up to 3 cycles Allowed
Over charge test	N/A	No explosion Leakage may occur	Cell is discharged with 0.2C to1.0V,then 0.1C for 48 hours	
Over discharge test	N/A	No explosion	Cell is discharged with 0.2C to 0.00V, then with 1C forced discharged for 1hours	
Charge Retention (20C)	mAh	≥1500(60%)	Standard charge, storage for 28 days at 20℃, standard discharge	
	mAh	≥1500(60%)	Standard charge, storage for 7 days at 40℃, standard discharge	
IEC Cycle life test	cycle	≥500	IEC 61951-2 7.4.1.1	
Short circuit test	N/A	No fire No explosion	After 0.2C to 1.00V,cell is fully charged with 0.1C for 16hours(or with 0.5C for 2.2hours), then shorted for 1hour or longer with a 50～100mΩ load or less	
Vibration test	N/A	No physical change No leakage Cell electrical performances unchanged	Cell is vibrated continuously lengthwise for 60minutes Amplitude: 4mm Frequency: 1000times/minutes	
Drop test	N/A	No abruption No leakage No explosion	After 0.2C to 1.00V, cell is fully charged with 0.1C for 16hours ,then cell is dropped 3 times from a 1.0m height onto solid wood (20mm thick) with random orientation	
Safety device Operation test	N/A	No explosion	Forced discharge at 0.2C to a final voltage of 0V,then the current be increased to 1C and forced discharge continue for 60 min	

Attention: The object of abuse test is unit cell.

Append: IEC61951-2 Endurance in cycles

IEC Normal Cycling Test:

Cycle No.	Charge	Rest	Discharge
1	0.1C × 16hrs	None	0.25C × 2hrs 20mins
2~48	0.25C × 3hrs 10mins	None	0.25C × 2hrs 20mins
49	0.25C × 3hrs 10mins	None	0.25C to 1.00V/cell
50	0.1C × 16hrs	1~4hrs	0.2C to 1.00V/cell
Cycle 1 to 50 shall be repeated until the discharge duration on any 50th cycle becomes less than 3hrs			

The endurance test is considered complete when two such successive cycles give a discharge duration less than 3h.The number of cycles obtained when the test is completed shall be not less than 500.

6. Configurations, Dimensions And Markings

Please refer to the related drawing

7. Warranty

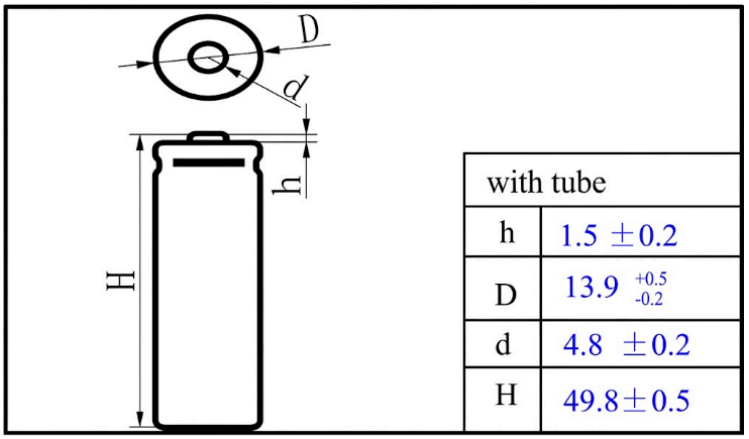
The quality guarantee period for our products is one year

8. Cautions

1. Reverse charging is not acceptable.
2. Charge before use, use the correct charger for Ni-MH batteries.
3. Do not charge / discharge with more than the specified current.
4. Do not short circuit the cell / battery.
5. Do not incinerate or mutilate the cell / battery.
6. Do not solder directly to the cell / battery.
7. The life expectancy may be reduced if the cell / battery is subjected to adverse conditions, like extreme temperature, deep cycling, excessive overcharge / over-discharge.
8. Store the cell / battery in a cool dry place.
9. For charging methods please reference to TMK technical handbook.
10. When find battery power down during use,please switch off the device to avoid over discharge.
11. When not using a battery, disconnect it from the device.
12. Well-ventilated place out of direct sunlight.
13. During long term storage, please activate the battery once every 3 months according to the following method: Charge at 0.1C for 16hrs , rest 10 min, then discharge with 0.2C to 1.0V/cell,rest 10 min, then charge at 0.2C to 150min.
14. When the battery is hot, please do not touch it and handle it, until it has cooled down
15. Do not mix WinPow batteries with other battery brands or batteries of a different chemistry such as alkaline and zinc carbon batteries.
16. Do not mix new batteries in use with semi-used batteries, battery may be over-discharged.
17. 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.
18. Keep away from children. If swallowed, contact a physician at once.

9. Specifications of single cell

Dimensions



with tube	
h	1.5 ±0.2
D	13.9 $^{+0.5}_{-0.2}$
d	4.8 ±0.2
H	49.8±0.5

Nominal Voltage	1.2V
Nominal Capacity	2500 mAh
Rated Capacity	2450 mAh
Standard Charge	250 mA, 16 hours
Quick Charge	1250mA, 140 min
Continuous Discharge	less than 2450mA
Discharge Cut-Off Voltage	0.9V
Weight	28g (Approx)
Service Life	≥ 500cycles
(according to IEC discharge characteristics standard)	
Internal Impedance	≤3 5 mΩ (1KHz)
Ambient Temperature	
Standard charge	0 ~45℃
Quick charge	0 ~40℃
Standard discharge	-20 ~ 50℃
Storage	65+20% RH
Less than 30 days	-20 ~ +40℃
Less than 90 days	-20 ~ +30℃
Less than 180 days	-20 ~+25℃

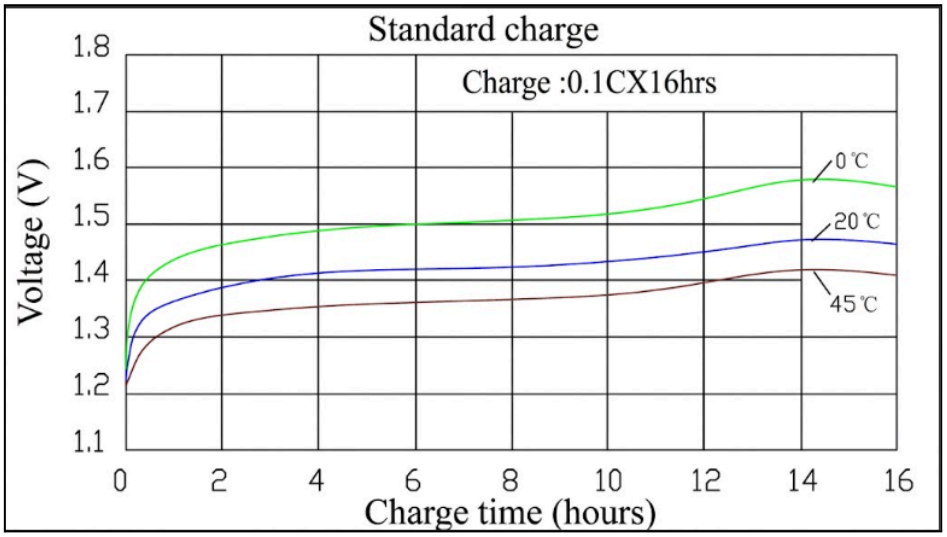
Note

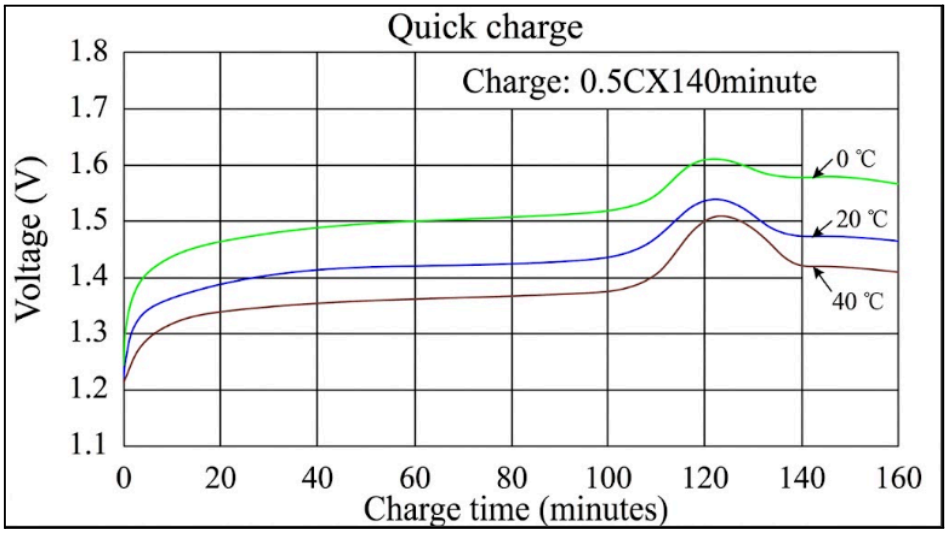
1.After charge at 0.1C for 16 hrs and discharge at 0.2C to 1.0V at 25℃

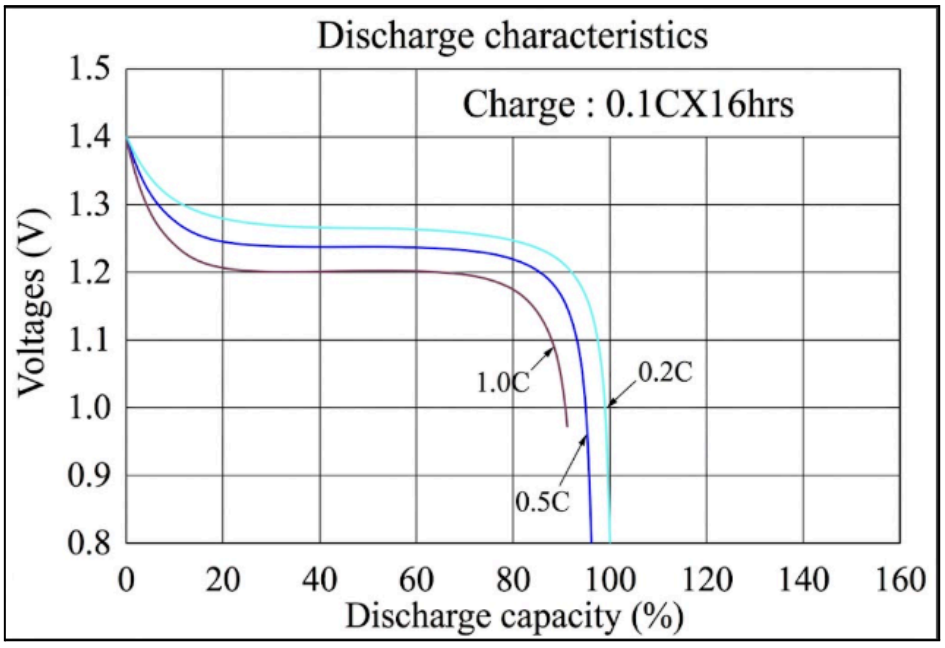
2. Control required

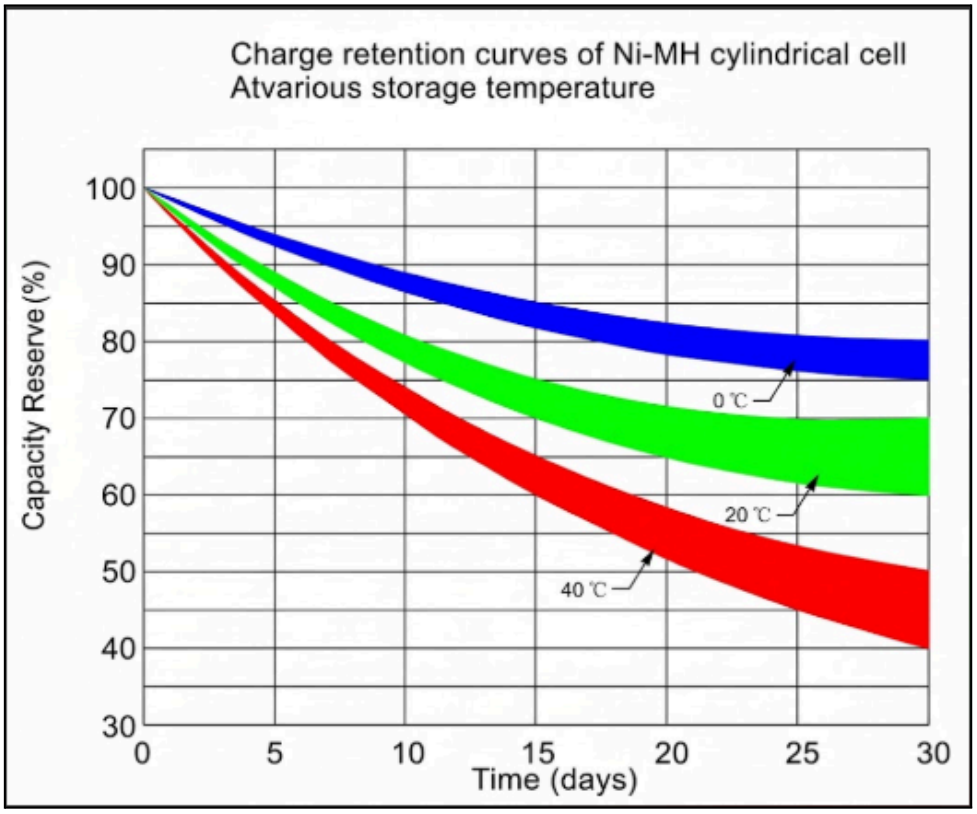
1) -ΔV:5~8 mV 2) dT/ dt: 0.5-1.0℃/ min 3) Tco: 40~ 50℃

10. Typical electrical performance









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