SPECIFICATION

FOR
NEX*cell* SEALED NICKEL-METAL HYDRIDE
CYLINDRICAL RECHARGEABLE BATTERY CELLS

1. Scope of Application:

Type	**C (High Top)** **4500 mAh**

Nominal Voltage		1.2V/cell
Capacity	Typical	4500 mAh/0.2 CmA@20℃
	Minimum	4000 mAh/0.2 CmA@20℃
Charge	Standard	0.1 CmA for 16 hrs.
	Rapid	0.3CmA for 3.6hrs.(approx.) - △V = 0~5mV/cell, Temp. cut-off = 45~50℃, dT / dt=0.8℃/ min. Ta = 0~40℃.
	Trickle	0.03 CmA (time must to be advised from NEXcell according to the condition of cut-off)
Maximum Discharge Current		1.0CmA (Continuous) 3.0CmA (Pulse)
Discharge Cut-off Voltage		1.0 V/cell
Cycle Life		500 cycles (see Note:6)
Applicable Temperature	Standard Charge	0~+45℃
	Rapid Charge	0~+40℃
	Discharge	-10~+60℃
Storage	Within 6 months	-20℃~+20℃
	Within 3 months	-20℃~+30℃
	Within 1 month	-20℃~+40℃
Relative Humidity Range		65%±20%
Dimension		D = 25.5 mm max., H = 50.0 mm max.
Weight		Approx. 86.0 g

■ This specification is available only for the testing within one month since receipt of battery packs

■ To keep the best performance for those not used for a long time, we recommend to charge the cells/batteries at least 30% after discharge entirely in every 6 months.

■ Note: Specifications are subject to be modified without prior notice.

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2. Performance:

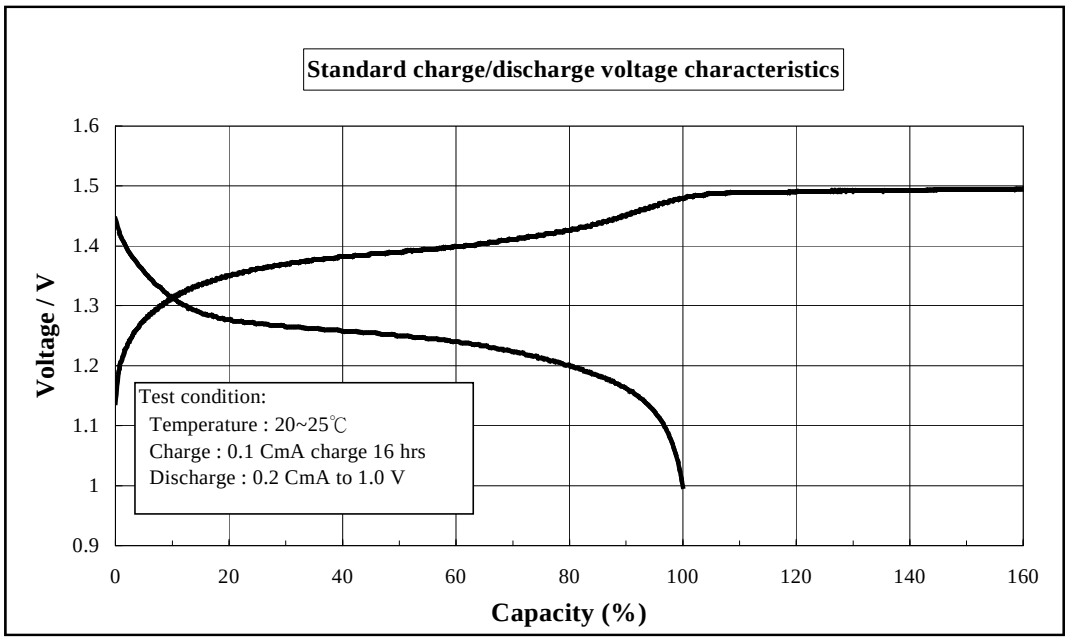
Unless otherwise stated, tests should be done within 45 days of delivery under the following Conditions:

Ambient Temperature, Ta : 20 ± 5℃
Relative Humidity : 65 ± 20% RH

Standard Charge / Discharge Condition
Charge : 0.1 CmA x 16 hours
Discharge : 0.2 CmA to 1.0 V/cell

Test Item	Test Method	Performance	Remarks
Capacity	Standard Charge Standard Discharge	No less than rated capacity	Up to 3 cycles are allowed
High Rate Discharge (1.0CmA)	Standard Charge 1 hour rest before discharge	No less than 80% of rated capacity	
Low Temperature Discharge	Discharge at 0.2CmA in 0±2℃ for 16~24 hours stand after a standard charge	No less than 70% of rated capacity	
Terminal Voltage Open Circuit Voltage	Within 1 hour after standard charge	No less than 1.25V/cell in terminal voltage	
Cycle Life	IEC 61951-2 (2003) 7.4.1.1	Over 500 cycles	See Note:6
Charge Retention	Standard Charge Storage 28 days at 20 ± 2℃ Standard Discharge	No less than 60% of rated capacity	
Overcharge	Charge at 0.1CmA for 48 hours Standard Discharge	No less than rated capacity	
Over-discharge	Standard Charge Discharge at 2.0CmA to 1.0 V/cell Over-discharge at 1.0CmA for 1 hour	The cell shall not explode The safety valve of the cell shall operate	
Vibration Amplitude Frequency Direction and Time	 3.6mm peak to peak 1000 cpm Arbitrary direction / 1 hour	The cell shall be normality in appearance No less than 1.2V/cell in terminal voltage.	
Shock Dropping Distance Shock Board Dropping Time	 0.45 m (spontaneous dropping) Hard wood (Thickness: over 10 mm) Arbitrary direction / 3 times	The cell shall be normality in appearance No less than 1.2Vcell in terminal voltage	
Leakage	Standard Charge Storage : 14 days in 33 ± 5℃ and 80 ± 5% RH	The cell shall have no visible leakage	
Short Circuit	After standard charge, short circuit by 2 mm Ni-tab for 1 hour	Leakage and deformation may occur, but no explosion is allowed	

3. Charge/Discharge Curve



4. Safety Requirement for User

Please keep in mind the following points when operating, designing, or manufacturing your equipment.

1. Do not short circuit the battery. Do not connect the positive and the negative terminals with a wire or other metal items, as this will cause a large flow of current through the battery. It may damage the battery.
2. A proper charge is needed prior to use. Reverse charging is not acceptable.
3. Do not charge / discharge with more than the specified current.
4. Do not attempt to take the battery apart or subject to pressure or impact. The parts of the battery will be damaged, when the battery has ruptured, heat may be generated or fire may result. The alkaline electrolyte may harm the skin or eyes or damage clothing upon contact.
5. Do not heat, incinerate or mutilate the cell/battery. The battery may swell or rupture and it may explode or release alkaline electrolyte.
6. Do not solder directly to the cell/battery. It may damage the cell/ battery.
7. If any abnormally or problem is found while using the battery, stop its use, and bring it to your local dealer. Please do not attempt to fix or take the battery apart. It may cause danger to you.

8. Charge the battery only with a charger specified by NEX*cell* Battery or with a charger that meets our specified conditions. Charging under other conditions can cause overcharging and loss of charging control, and can cause the battery to leak, overheat, burst, or catch fire.
9. Avoid batteries to be used in any 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.
10. When connecting a battery pack to a charger, please ensure the polarity is correct.
11. The life expectancy may be reduced if the cell / battery is under adverse conditions, such as extreme temperature, deep cycling, excessive overcharge /overdischarge, etc.
12. Do not mix NEXcell batteries with other battery brands or batteries of a different chemistry such as alkaline and zinc carbon.
13. Do not mix new batteries in use with semi-used batteries, overdischarge may occur.
14. Store the cell / battery in a cool dry place.
15. Keep away from children. If swallowed, contact a physician at once.
16. If notice any noise, excessive temperature or leakage from a battery, please stop to use it.
17. When the battery is hot, please do not touch it or handle it, until it cooled down.
18. Do not remove the outer sleeve from a battery pack nor cut into its housing.

19. When battery running out of power, please switch off the device to avoid overdischarge.
20. When not using a battery, disconnect it from the device.
21. Proper way to unplug a battery is to hold the connector and not by pulling at its electric wire.
22. After use, if the battery is still hot, allow it to cool in a well-ventilated place out of direct sunlight before recharging it.
23. Avoid put a battery into water or seawater.
24. During long term storage, battery should be charged and discharged once every half a year.

5. Warranty

Six months limited warranty against workmanship and material defect.

Notes:

1. Ta: Ambient Temperature
2. When using a new battery for the first time or after long-term storage, please fully charge the battery before use.
3. The charge time is for reference only. It may alter due to different condition.

4. Activate the battery once every 3~6 months.

5. When using a new battery for the first time or after long term storage, please fully charge the battery before use.

6: IEC61951-2 (2003) 7.4.1.1 Endurance Cycle Life Test：

The battery is capable of 500 cycles under the following conditions and tested @20C:

Cycle number	Charge	Rest	Discharge
1	0.10CmA for 16 hrs	none	0.25CmA for 2 hrs 20 mins
2~48	0.25CmA for 3 hrs 10 mins	none	0.25CmA for 2 hrs 20 mins
49	0.25CmA for 3 hrs 10 mins	none	0.25CmA to 1.0V/cell
50	0.10CmA for 16 hrs	1-4hr(s)	0.20CmA to 1.0V/cell
Cycle 1 to 50 shall be repeated until the discharge duration on any 50th cycle becomes less than 3 hrs.			

PS: The actual cycle life depends on the operating temperature and cycling conditions.

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