



## Sealed Rechargeable Nickel Cadmium Battery

### Ni-CD 2500mAh 'C'

#### 1. SCOPE

The specifications governs the performance of the following Nickel-Cadmium Cylindrical cell and its battery pack..

Model: NCC2500

Cell Size: D (j):  $25.2^{±0.3}$  mm H:  $46.5^{±0.5}$  mm)

#### 2. DATA OF BATTERY PACK

The data of battery pack, including voltage and weight, is almost equivalent to the multiple numbers of the relevant single cells.

Example: Battery pack consisting three single cells

Nominal voltage of single cell = 1.2V

Nominal voltage of battery pack =  $1.2V \times 3 = 3.6V$

#### 3. RATINGS

Description		Unit	Specification	Conditions
Nominal Voltage		V/Cell	1.2	Single cell or battery pack
Nominal Capacity		mAh	2500	Standard Charge/Discharge
Standard Charge Rate		mA	250 (0.1C)	
		Hour	14~16	
Rapid Charge Rate		mA	1250 (0.5C)	Voltage Cut Off-DV=10-15mV Temp.Cut Off =50°C
		Hour	2.3approx (see Note 1)	
Trickle Current		mA	(0.05C)~(0.1C)	
Standard discharge		mA	500 (0.2C)	
Discharge Cut-off Voltage		V/Cell	1.0	Battery pack: (n ~1.0)V (n=1~6) [(n-1) ~1.2]V (n=7~10) (n: cell number)
Operating Temperature Range	Standard Charge	°C	0~+45	Humidity: +65%±20%
	Rapid Charge	°C	10~+40	
	Discharge	°C	-20~+60	
Storage Temperature Range	Within 2 years	°C	-20~+35 (see Note 2)	Humidity: +65%±20%
	Within 6 months	°C	-20~+40	
	Within 1 month	°C	-20~+50	
	Within 1 week	°C	-20~+55	
Dimension	Diameter	mm	$25.2^{±0.3}$	
	Height	mm	$46.5^{±0.5}$	
Typical Weight		Gram	60approx	Single cell



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#### 4. PERFORMANCE

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

Ambient Temperature,  $T_1$ :  $20 \pm 5^\circ\text{C}$

Relative Humidity:  $65 \pm 20\%$

Notes: Standard Charge/Discharge Conditions:

Charge: 250mA(0.1C) ~15 hours

Discharge: 500mA(0.2C) to 1.0V/Cell

Test Item	Unit	Specification	Test Conditions	Remarks
1. Capacity	mAh	$\geq 2500$	Standard Charge/Discharge	Up to 3 cycles are allowed
2. Open Circuit Voltage (O.C.V)	V/Cell	$\geq 1.30$	Within 1 hour after standard Charge	
3. Closed Circuit Voltage (C.C.V)	V/Cell	$\geq 1.25$	Within 1 hour after standard Charge, discharge the cell with 1C, The C.C.V. shall exceed 1.25V per cell within 1sec.	
4. Internal Impedance	mW/Cell	$\leq 15$	Within 1 hour after standard Charge (1000Hz)	.
5. High Rate Discharge (1C)	minute	$\geq 54$	Following Standard Charge, Stored for a period of 1hour, The Discharge duration by 2500mA (1C) to 1.0V/cell	Up to 3 cycles are allowed
6. Low Temperature Discharge	hour	$\geq 3$	Standard Charge(0.1C): 14~16h ( $20^\circ\text{C} \pm 5^\circ\text{C}$ ) Storage: 16~24h ( $-18^\circ\text{C} \pm 2^\circ\text{C}$ ) Standard Discharge(0.2C): 1.0V/cell ( $-18^\circ\text{C} \pm 2^\circ\text{C}$ )	
7. Self Discharge	mAh	$\geq 1750$ (70%)	Following Standard Charge, Stored on open circuit for a period of 28days, The Discharge duration by 500mA (0.2C) to 1.0V/cell	
8. Storage	hour	$\geq 5$	The cell shall be stored on open circuit for a period of 12months at discharged state, Following completion of the storage period; the cell shall be charge for 16hours at 250mA (0.1C). The discharge duration by 500mA (0.2C) to 1.0V/cell	
9. Overcharge	hour	$\geq 5$ (No leakage and no explosion)	Charge: 250mA (0.1C) charge 28 days Storage: 1 hour Discharge: 500mA (0.2C) to 1.0V/cell	



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<b>10. Life Time (Based on IEC)</b>	Cycle	≥500	IEC285 (1993) 4.4.1	(see Note 3)
<b>11. Over-discharge</b>		No distortion	Within 1hour after standard Charge, Discharge 24h with 1W/cell load.	
<b>12. Humidity</b>		No leakage	The charged battery is stored for 10 days at 33±3°C and 80±5% of relative humidity.	
<b>13. Safety Valve Operation</b>		No explode or disrupt	Forced discharge is conducted for 1hour at a constant current of 1250mA (0.5C) after pre-discharge at a constant current of 500mA (0.2C) up to 0V.	(see note 4)
<b>14. Drop Test</b>		Mechanically and electrically normal	The battery is subjected to a drop, which has a height of 45cm (17.7 inches) to an oak board of 10mm or more thick in a voluntary axis respectively 3 times.	

## 5. CONFIGURATION, DIMENSIONS AND MARKINGS

Please refer to the attached drawing.

## 6. EXTERNAL APPEARANCE

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

## 7. CAUTION

- (1) Reverse charging is not acceptable.
- (2) Charge before use. The cells/batteries are delivered in an uncharged state.
- (3) Do not charge/discharge with more than our specified current.
- (4) Do not short circuit the cell/battery Permanent damage to the cell/battery may result.
- (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 adverse conditions like: extreme temperature, deep cycling, excessive overcharge/ over-discharge.
- (8) Store the cell/battery uncharged in a cool dry place. Always discharge batteries before bulk storage or shipment.

## 8. Notes:

- (1) Approximate charge time from discharged state, for reference only.
- (2) We recommend cells or batteries are charged at least once every 6 months.
- (3) IEC285 (1993) 4.4.1 Cycle Life:

Cycle No.	Charge	Storage	Discharge
1	0.1C ~16h	None	0.25C ~2h20min
2-48	0.25C ~3h10min	None	0.25C ~2h20min
49	0.25C ~3h10min	None	0.25C to 1.0V/cell
50	0.1C ~16h	1-4h	0.2C to 1.0V/cell

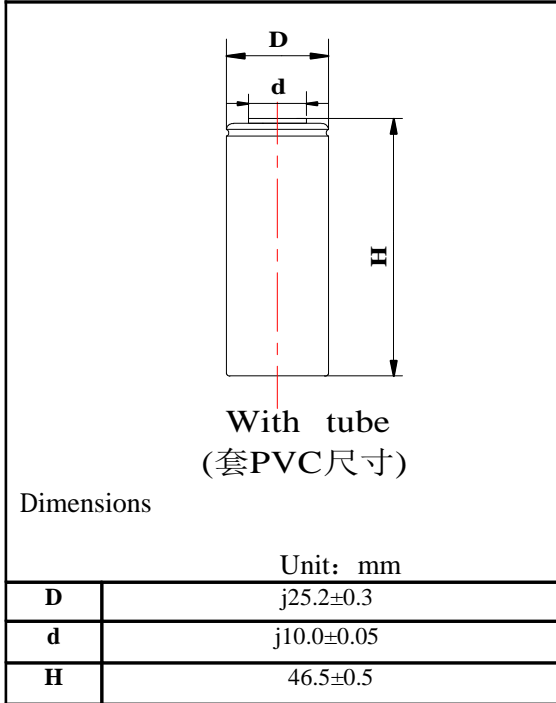
Cycles 1 to so shall be repeated until the discharge duration on any 50th Cycle becomes less than 3h.

- (4) Electrolyte leakage and deformation of battery are acceptable.



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## Sealed Rechargeable Nickel Cadmium Battery Size C 2500mAh



<b>Nominal voltage</b>		1.2V		
<b>Nominal Capacity (mAh)</b>		C/10	C/5	1C
		2520	2500	2250
<b>Weight</b>		60g		
<b>Internal Impedance at 1000Hz (After Charge)</b>		£15mW		
<b>Charge current</b>	<b>Standard</b>	250mA		
	<b>Rapid</b>	1250mA		
<b>Charge time</b>	<b>Standard</b>	14~16Hrs		
	<b>Rapid</b>	2.3Hrs		
<b>Ambient Temperature</b>	<b>Charge</b>	<b>Standard</b>	0~+45°C	
		<b>Rapid</b>	10~+40°C	
	<b>Discharge</b>		-20~+60°C	
	<b>Storage</b>		-20~+35°C	

