

# Product Specification

for Ni-Cd Battery

Model Number: Ni-Cd D 1.2V 4500mAh HT

Prepared By	Verified By	Approved By



## Contents

### 1. SCOPE

This specification governs the performance of the following Everwin Tech Co., Limited Nickel-Cadmium cylindrical Cell and its stack-up batteries.

Model: Ni-Cd D 1.2V 4500mAh HT

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	1.2V	
Nominal Capacity	mAh	4500	Standard Charge/discharge
Minimum Capacity	mAh	4500	Standard Charge/discharge
Standard Charge	mA	450 (0.1C)	Ta=0~45°C
	hour	16	
Trickle Charge	mA	0.03C ~ 0.05C	Ta=0~70 °C
Standard discharge	mA	900 (0.2C)	T1= 20±5°C Humidity: Max85%
Discharge Cut-off Voltage	V	1.0V	
Storage Temperature	°C	-20~30(Within 1 year)	Discharged state Humidity: Max85%
		-20~40(Within 6 months)	
		-20~50(Within 1 month)	
		-20~60(Within 1 week)	
Typical Weight	g	127	unit cell

### 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: 450mA(0.1C)×16hrs

Discharge: 900mA(0.2C)to 1.0V/ cell

Test	Unit	Specification	Conditions	Remarks
Capacity	mAh	≥4500	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	≤9	Upon fully charge(1kHz) (1kHz)	
High Rate Discharge (1C)	min	≥48	Standard Charge,1hr rest before discharge	
Charge Retention	mAh	≥2925	Standard Charge,Storage: 28 days,Standard Discharge	
IEC Cycle Life	Cycle	≤500	IEC61981-1 (2003) 7. 4. 1. 1	
Permanent Charge Endurance Test	Min	T1,T2≥225	IEC61981-1 (2003) 7. 4. 2. 3	See Table 1
	Min	T3,T4≥150		
Leakage		No leakage nor deformation	Fully charged at 200mA for 28days	See Table 2
Vibration Resistance		Change of voltage should be less than 0.02V/cell,change of impedance should be less than 5milliohm/cell	Charge the battery 0.1C 14hrs,then leave for 24hrs,check Battery before/after vibration,Amplitude 1.5mmVibration 3000 CPMAny direction for 60mins.	
Impact Resistance		Change of voltage should be less than 0.02V/cell,change of impedance should be less than 5milliohm/cell	Charge the battery 0.1C 14hrsThen leave for 24hrs,check bat-before/ after dropped,Height 50 cm Wooden board(thickness 30mm) Direction not specified,3 times.	

## 4. CONFIGURATION, DIMENSIONS AND MARKINGS

Please refer to the attached drawing.

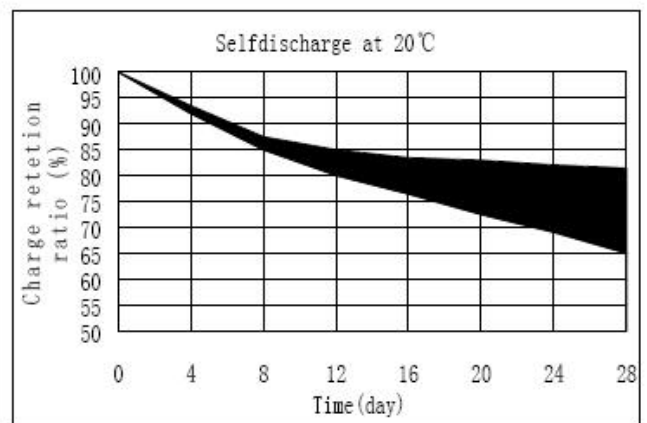
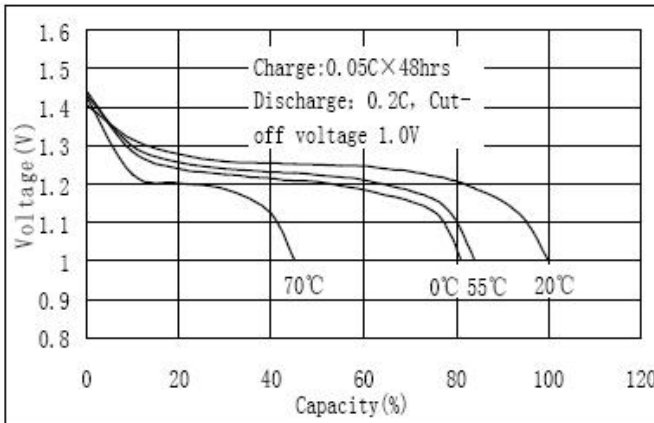
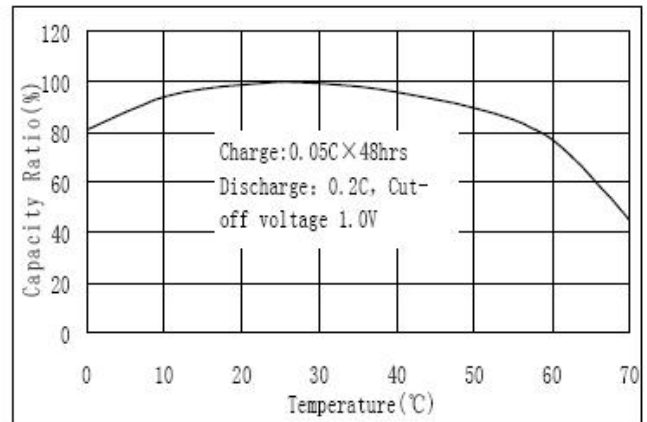
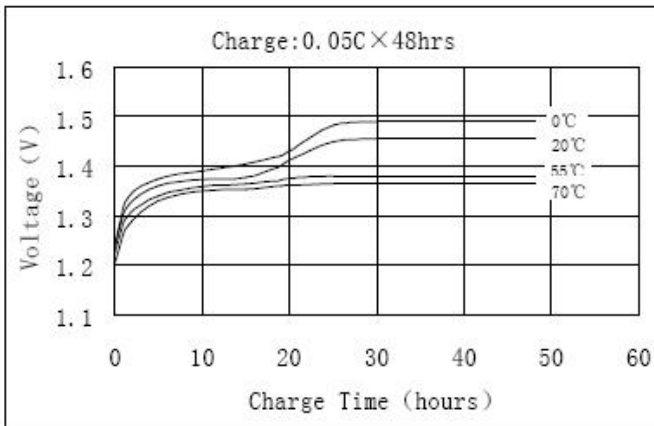
## 5. EXTERNAL APPEARANCE

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

## 6. CAUTION

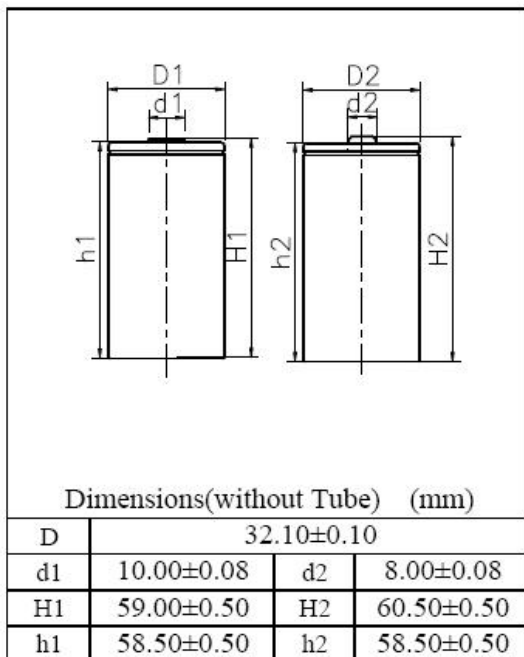
- ◆. Reverse charging is not acceptable
- ◆. Do not burthen current when charging.
- ◆. Do not charge/discharge with more than the specified current.
- ◆. Do not short circuit the cell/ battery. Permanent damage to the cell/ battery may result.
- ◆. Do not incinerate or mutilate the cell/ battery.
- ◆. 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. Specification



## 8. Draw

Unit: mm



## Specification

Nominal Capacity		4500 mAh	
Nominal Voltage		1.2 V	
Charge current	Trickle	225 mA	
	Standard	450 mA	
Charge time	Trickle	48 Hrs~	
	Standard	16 Hrs	
Ambient Temperature	Charge	Trickle	0°C~70°C
		Standard	0°C~70°C
	Discharge	-20°C~70°C	
Storage		-20°C~60°C	
Internal Impedance(mΩ) (After Charge)		≤ 9	
Weight		127 g	

**NOTICE:** Any question you must apprise us in a week, or the standards will be accepted.