



Intec Industries Co., Ltd.
Room 2703, Well Tech Centre
9 Pat Tat Street, San Po Kong, Hong Kong
Tel : (852) 2885 1100
Fax : (852) 2947 0588

SPECIFICATION

Type:	Ni-MH Cylindrical Cell
Model No.:	IMX-4000CHH
Prepared:	CYL
Approved:	LFX
Date:	Nov 13, 2009



1. PREFACE

This specification applies to the Intec Nickel-Metal Hydride Cylindrical batteries or battery packs. Intec reserves the right to alter the product design or amend this specification without prior notice.

2. TYPE

This specification applies to the following sealed nickel-metal hydride battery with high hat button.

Type: IMX-4000CHH

Size: C (with high hat button)

3. CHARACTERISTICS

- ★ Nominal voltage: 1.2 V.
- ★ Nominal capacity: 4000 mAh
- ★ Standard charge: 400 mA × 15h
- ★ Quick charge: 2000 mA × 2.4h (- Δ V = 5mV)
- ★ Trickle charge: 130 ~ 200 mA
- ★ Discharge cut-off voltage: 1.0 V/cell (20°C)
- ★ Max. current of constant discharge: 16 A (20°C, unit cell)
- ★ Operating temperature range: (Max. relative humidity: 85%)
 - Standard charge 0 ~ +40°C
 - Trickle charge 10 ~ +40°C
 - Quick charge 10 ~ +40°C
 - Discharge -20 ~ +40°C
- ★ Storage temperature range: (Max. relative humidity: 85%)
 - Within two years -20 ~ +30°C
 - Within two months -20 ~ +40°C
 - Within one month -20 ~ +50°C
 - Within one week -20 ~ +60°C

4. EXTERNAL DIMENSION/WEIGHT

4.1 Dimensions: Φ25.3±0.5 × 50.2±0.8 mm

4.2 Gross weight: 77 g

5. CELL PERFORMANCE

5.1 TEST REQUIREMENTS

The following conditions are for new batteries (within one month after delivery under the test method of 5.2).

Environmental temperature: +15 ~ +25°C. Relative humidity: 45% ~ 85%.



5.2 TEST METHOD AND PERFORMANCES

5.2.1 APPEARANCE

The cell should be free from stretches, dents, dirt and rusts.

5.2.2 CAPACITY

Charge with 0.1C for 15 hours then discharge with 0.2C to the end-voltage 1.0 V/unit, the capacity shall be more than 4000 mAh.

5.2.3 OPEN-CIRCUIT VOLTAGE

The open-circuit voltage within one hour after full charge shall be more than 1.25V/unit.

5.2.4 INTERNAL IMPEDANCE

Within one hour after full charge, the internal impedance shall be less than 16 mΩ /cell.

5.2.5 SELF-DISCHARGE

The capacity shall be more than 2800 mAh after the storage of 28 days for the fully charged battery.

5.2.6 OVER-CHARGE

The battery shall not cause salting, leakage or deformation when charged at 400 mA for 48 hours and the capacity shall be more than 4000 mAh.

5.2.7 OVER DISCHARGE

The battery shall not cause deformation when it is discharged for 24 hours with the external resistance at 0.5 Ω.

5.2.8 LIFE-SPAN (CUSTOM)

The capacity shall be more than 2800 mAh after 500 cycles with the test conditions as follow:

TEST CONDITION:

Cycle	Charge	Rest	Discharge
1 st	Charge at 0.1C for 15 hours	None	Discharge at 0.25C for 2.33 h
2 nd ~ 48 th	Charge at 0.25C for 3.17 hours	None	Discharge at 0.25C for 2.33 h
49 th	Charge at 0.25C for 3.17 hours	None	Discharge at 0.25C to 1.0V/unit
50 th	Charge at 0.1C for 15 hours	1 ~ 4 hours	Discharge at 0.2C to 1.0V/unit

5.2.9 LIFE-SPAN (EXPRESS)

The battery shall supply 2800 mAh at the 400th cycle under the conditions as follows.

Charge	0.5C ₅ for 144 minutes (- Δ V= <u>5</u> mV)
Discharge	1C ₅ to 1.0V/cell



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5.2.10 STORAGE

Within 14 days, the battery shall not cause leakage at 30-60°C with the relative humidity at 75%-85%.

5.2.11 VIBRATION

The battery shall not cause damage to its performances when tested with the amplitude at 4 mm (0.158 inch) and the frequency at 1000Hz.

5.2.12 DROP TEST

The battery shall keep normal when dropped from a height of 450 mm (17.716 inch) to the wooden board.

5.2.13 SHORT CIRCUIT

The fully charged battery shall not explode when shorted directly by wires.

5.2.14 INCORRECT POLARITY CHARGE

Discharge at 0.2C to the end voltage 0V, then discharge by force at 1C rate for 60 minutes, and the battery should not explode or break.

5.2.15 OVER CHARGE II

The battery shall not explode when charged at 1C for 2 hours.

6. CAUTIONS

- A. The end-voltage is recommended at $1.0 \pm 0.1V$ /cell.
- B. The battery may go fail when shorted, over-charged or charged with incorrect polarity.
- C. Avoiding soldering directly to the battery.
- D. Do not dispose of in fire and keep away from damage.

7. REFERENCE

Please refer to Intec's Customer Service if there is any question on using batteries.



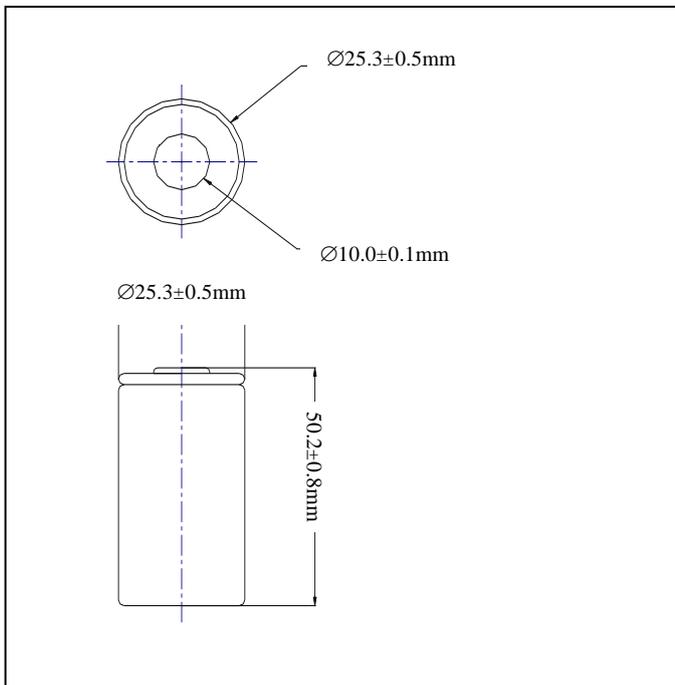
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Specifications

Nominal voltage		1.2V		
Capacity (mAh)		C/5	C	
	Nominal	4000	3600	
	Typical	4080	3670	
Diameter		25.3 ± 0.5 mm		
Height		50.2 ± 0.8 mm		
Weight		77g		
Internal impedance at 1000Hz.		≤ 16mΩ (After charge)		
Charge	Standard	400mA × 15hrs		
	Quick	2000mA × 2.4hrs		
	Trickle	Max.	200mA	
		Min.	130mA	
Ambient temperature	Charge	Standard	0°C ~ 40°C	
		Quick	10°C ~ 40°C	
	Discharge		-20°C ~ 60°C	
	Storage		-20°C ~ 30°C	

Note:

- Nominal capacity, rated at C/5, 20°C.**
- Other capacities are for reference.**
- Weight and internal impedance are for reference.**



Typical characteristics

