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SPECIFICATION

Type:	Ni-MH Cylindrical Cell
Model No.:	IMH-1200AA
Prepared:	HML
Approved:	LFX
Date:	Aug 28, 2003



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. RATINGS

- ★ Nominal voltage: 1.2 V.
- ★ Nominal capacity: 1200 mAh(0.2C₅).
- ★ Standard charge: 120 mA × 14h.
- ★ Fast charge: 1200 mA × 1.2h.
- ★ Trickle charge: 40~60 mA.
- ★ Discharge cut-off voltage: 1.0 V/unit(20°C).
- ★ Max current of constant discharge: 1200 mA(20°C, unit cell).
- ★ Max current of momentary discharge: 3600 mA(20°C, unit cell).
- ★ Operate temperature range. (Max relative humidity: 85%)

Standard charge	-20 ~ +30°C
Trickle charge	10 ~ +45°C
Fast charge	10 ~ +45°C
Discharge	-20 ~ +50°C

- ★ storage temperature range. (Max relative humidity: 85%)

Within two years	-20 ~ +30°C
Within two months	-20 ~ +45°C
Within one month	-20 ~ +55°C
Within one week	-20 ~ +65°C

3. EXTERNAL DIMENSION/WEIGHT

- 3.1 Dimensions: Φ14.0×48.5 (mm);
- 3.2 Gross weight: 28 (g);

4. CELL PERFORMANCE

4.1 TEST REQUIREMENTS

The following conditions are for new batteries (within one month after delivery under the test method of 4.2.2.)

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



4.2 TEST METHOD AND CELL PERFORMANCES

4.2.1 APPEARANCE

No conspicuous stretches which influence the value of the battery.

4.2.2 CAPACITY

Charge with 0.1C for 14 hours then discharge with 0.2C to the end-voltage 1.0 V/unit, the capacity shall be more than 1200 mAh.

4.2.3 OPEN-CIRCUIT VOLTAGE

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

4.2.4 INTERNAL IMPEDANCE

Within one hour after full charge, the internal impedance shall be less than 30 mΩ/cell.

4.2.5 HIGH RATE DISCHARGE

The capacity shall be more than 1080 mAh with the constant discharge current of 1200mA to the end voltage of 1.0V after the battery is fully charged.

4.2.6 SELF-DISCHARGE

The capacity shall be more than 720 mAh after the storage of 28 days for the fully charged battery.

4.2.7 OVER-CHARGE

The battery shall not cause salting, leakage or reformation when charged at 120 mA for 48 hours and the capacity shall be more than 1200 mAh.

4.2.8 OVER DISCHARGE

The battery shall not cause reformation when it is discharged for 24 hours with the external resistance at 10Ω.

4.2.9 LIFE-SPAN(CUSTOM)

The capacity shall be more than 900 mAh after 500 cycles with the test conditions as follow:

TEST CONDITION

Cycle-th	Charge	Rest	Discharge
1	Charge at 0.1C ₅ for 14 hours	None	Discharge at 0.25C ₅ for 2.33 h
2 ~ 48	Charge at 0.25C ₅ for 3.17 hours	None	Discharge at 0.25C ₅ for 2.33 h
49	Charge at 0.25C ₅ for 3.17 hours	None	Discharge at 0.25C ₅ to 1.0V/unit
50	Charge at 0.1C ₅ for 14 hours	1 ~ 4 hours	Discharge at 0.2C ₅ to 1.0V/unit



4.2.10 LIFE-SPAN(EXPRESS)

The battery shall supply 720 mAh at the 400th cycle under the conditions as follows.

Charge	1C ₅ for 72 minutes
Discharge	1C ₅ to 1.0V/unit

4.2.11 STORAGE

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

4.2.12 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.

4.2.13 DROP TEST

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

4.2.14 SHORT CIRCUIT

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

4.2.15 INCORRECT POLARITY CHARGE

Discharge at 0.2C₅ to the end voltage 0V, then discharge by force at 1C₅ rate for 60 minutes, and the battery should not explode or break.

5. SUGGESTION & ADVICE

- A. The end-voltage is recommended at $1.0 \pm 0.1V/unit$.
- 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.



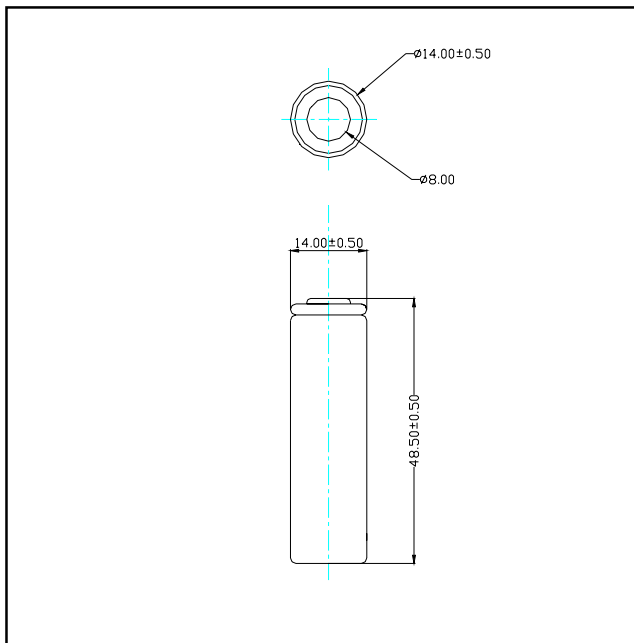
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Specifications

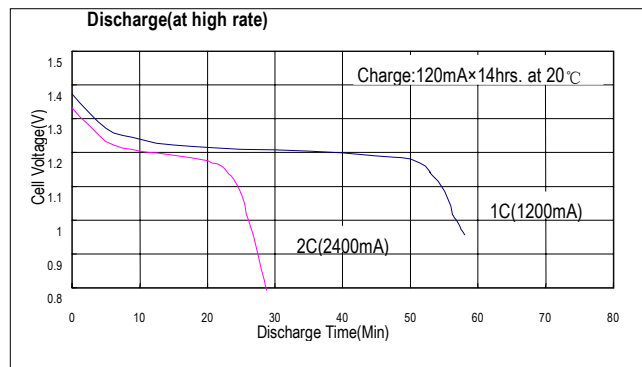
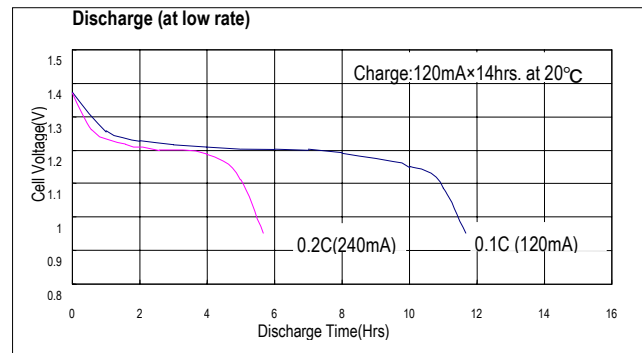
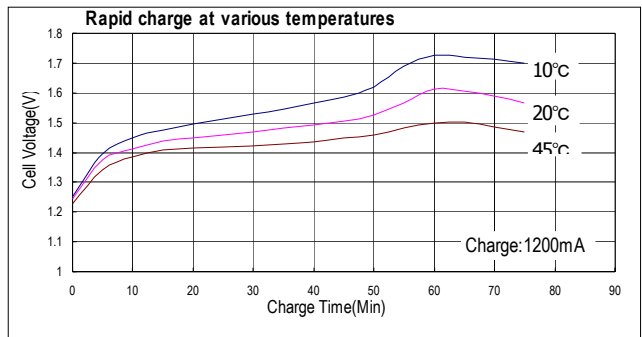
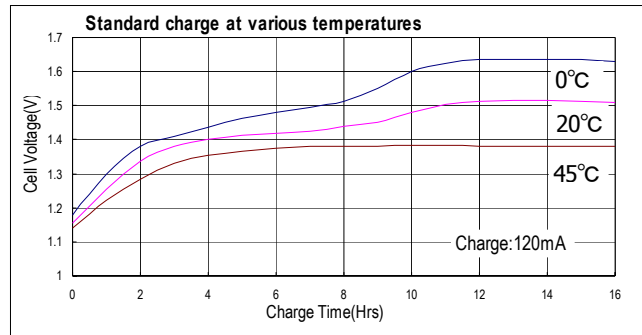
Nominal voltage		1.2V		
Capacity (mAh)		C/5	C	
	Nominal	1200	1080	
	Typical	1260	1200	
Diameter		0.55 ± 0.02 in 14.0 ± 0.5 mm		
Height		1.91 ± 0.02 in 48.5 ± 0.5 mm		
Weight		28g		
Internal impedance at 1000Hz.		30m Ω (After charge)		
Charge	Standard	120mA × 14hrs.		
	Quick	1200mA × 1.2hrs.		
	Trickle	Max.	60mA	
		Min.	40mA	
Ambient temperature	Charge	Standard	-20°C ~ 30°C	
		Quick	10°C ~ 45°C	
	Discharge	-20°C ~ 50°C		
	Storage	-20°C ~ 35°C		

Note:

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



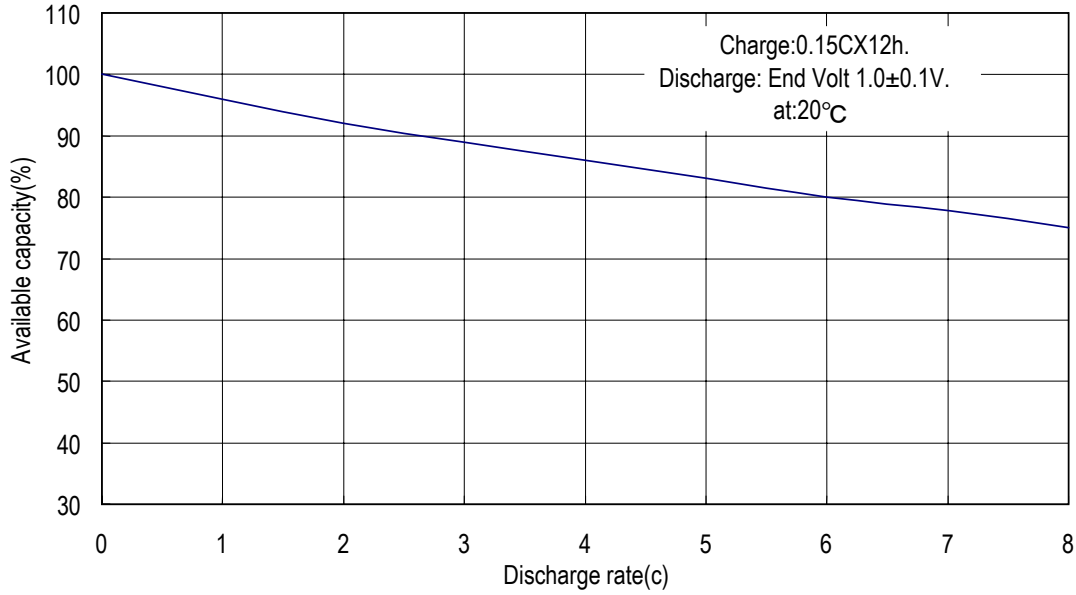
Typical characteristics





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Cell capacity (at various discharge rate)



Cycle Characteristics

