



Intec Industries Co., Ltd.
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SPECIFICATION

Type:	Ni-Cd Cylindrical Cell
Model No.:	IC-400AAS
Prepared:	CYL
Approved:	LFX
Date:	10-May-2010



1. PREFACE

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

2. SCOPE

This specification applies to Nickel Cadmium cylindrical rechargeable single cell.

Type: IC-400AAS .

Size: 2/3 AA .

3. CHARACTERISTICS

- Nominal Voltage : 1.2 V
- Nominal Capacity : 400 mAh
- Standard Charge : 40 mA x 16h
- Quick Charge : 200 mA x 2.5h
- Trickle Charge : 13 -20 mA x permanent
- Discharge cut-off voltage: 1.0 V/unit (20°C)
- Operating Temperature Range: (Max relative Humidity 85%)
 - Standard charge: 0 ~ +45°C
 - Quick charge : 10 ~ +45°C
 - Trickle charge : 0 ~ +45°C
 - Discharge : - 20 ~ +60°C
- Storage Temperature Range: (Max relative Humidity 85%)
 - 1 years : - 20 ~ +30°C
 - 6 months : - 20 ~ +40°C
 - 1 month : - 20 ~ +50°C
 - 1 week : - 20 ~ +60°C

4. DIMENSION / WEIGHT

Dimensions: $\Phi 14.0^{\pm 0.5} \times 28.1^{\pm 0.5}$ (mm);

Gross weight: 11 (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 5.2.2).
Environmental Temperature: +15 ~ +25°C; Relative humidity: 45% ~ 85%.



5.2 TEST METHOD AND PERFORMANCES

5.2.1 APPEARANCE

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

5.2.2 CAPACITY

Charge with 0.1C for 16 hours then discharge with 0.2C to the end-voltage 1.0 V/unit, the capacity shall be more than 400 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 40 m Ω /cell.

5.2.5 SELF-DISCHARGE

The capacity shall be more than 280 mAh after the storage of 28 days for the fully charged battery.

5.2.6 SAFETY DEVICE OPERATION

The battery shall be no disrupt or burst, but the leakage of electrolyte and the deformation of the battery are allowed when the battery discharged at 0.2C (at 20±5°C) until 0V then discharged at 1C for 2h.

The battery shall be no disrupt or burst, but the leakage of electrolyte and the deformation of the battery are allowed after the battery is charged at 0.1C for 16h and short-circuit the battery for 1h.

5.2.7 OVERCHARGE

The battery shall be no leakage, no disrupt, no burst when charged at 0.1C for 48 hours.

5.2.8 LIFE-SPAN(CUSTOM)

The capacity shall be more than 280 mAh after 500 cycles with the test conditions as follow:

TEST CONDITION

Cycle-th	Charge	Rest	Discharge
1	Charge at 0.1C for 16 hours	None	Discharge at 0.25C/5 for 2.33 h
2 ~ 48	Charge at 0.25C for 3.2 hours	None	Discharge at 0.25C/5 for 2.33 h
49	Charge at 0.25C for 3.2 hours	None	Discharge at 0.25C/5 to 1.0V/unit
50	Charge at 0.1C for 16 hours	1 ~ 4 hours	Discharge at 0.2C/5 to 1.0V/unit

5.2.9 STORAGE

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



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5.2.10 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.

5.2.11 DROP TEST

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

5.2.12 SHORT CIRCUIT

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

5.2.13 INCORRECT POLARITY CHARGE

The battery shall not explode when charged for 5 hours with the polarity being reverse.

5.2.14 OVER CHARGE II

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

6 CAUTION

- 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. Avoid soldering directly to the battery.
- D. Do not dispose of in fire and keep away from damage.

7 REFERENCE

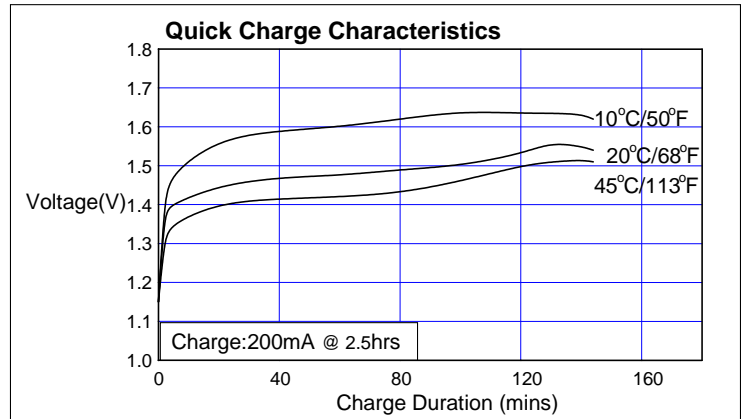
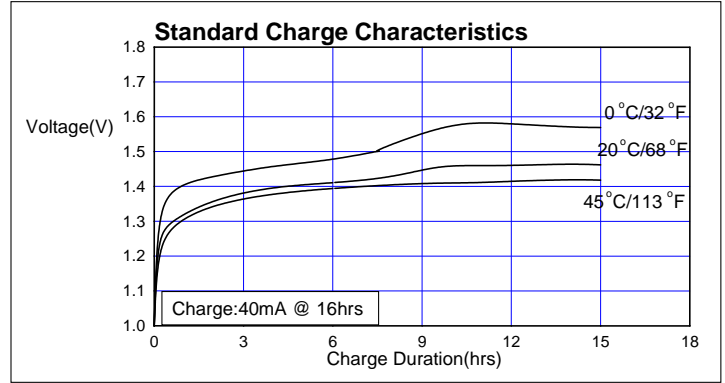
Please refer to Intec's Customer Service if there is any question on using batteries.



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Specifications

Nominal voltage		1.2V	
Capacity (mAh)		0.2C	1C
	Nominal	400	360
	Typical	410	370
Diameter		0.55 ± 0.02 in 14.0 ± 0.5 mm	
Height		1.10 ± 0.02 in 28.1 ± 0.5 mm	
Weight		11g(0.388oz)	
Internal impedance at 1000Hz.		40mΩ (After charge)	
Charge	Standard	40mA × 16hrs.	
	Quick	200mA × 2.5hrs.	
	Trickle	Max.	20mA
Min.		13mA	
Ambient temperature	Charge	Standard	0°C ~ 45°C 32°F ~ 113°F
		Quick	10°C ~ 45°C 50°F ~ 113°F
	Discharge		-20°C ~ 60°C -4°F ~ 140°F
	Storage		-20°C ~ 45°C -4°F ~ 113°F



Note:

1. Nominal capacity, rated at 0.2C, 20°C.
2. Other capacities are for reference.
3. Weight and internal impedance are for reference.

