



***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

<b>Type:</b>	Ni-Cd Cylindrical Cell
<b>Model No.:</b>	IF-700Cs
<b>Prepared:</b>	HML
<b>Approved:</b>	LFX
<b>Date:</b>	Sept 02, 2015



## 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. TYPE

The specification applies to the following sealed Nickel-Cadmium battery.

Type: IF-700Cs

Size: 1/2Cs

## 3. CHARACTERISTICS

- ★ Nominal voltage: 1.2 V
- ★ Nominal capacity: 700 mAh (0.2C)
- ★ Standard charge: 70 mA × 16hrs
- ★ Fast charge: 350 mA × (2.4hrs), (- Δ V = 5 mV)
- ★ Trickle charge: 23~35 mA
- ★ Discharge cut-off voltage: 1.0 V/unit (20°C)
- ★ Max current of constant discharge: 3 A (20°C, unit cell)
- ★ Operating temperature range: (Max relative humidity: 85%)
  - Standard charge -20 ~ +45°C
  - Trickle charge 10 ~ +45°C
  - Fast charge 0 ~ +45°C
  - Discharge -20 ~ +60°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

## 4. EXTERNAL DIMENSION/WEIGHT

4.1 Dimensions: φ 22.5±0.5 × 25.3±0.7 (mm)

4.2 Gross weight: 26 (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 EXTERNAL 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 16 hours then discharge with 0.2C to the end-voltage 1.0 V/unit, the capacity shall be more than 700 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 32 mΩ / cell.

**5.2.5 HIGH RATE DISCHARGE**

The capacity shall be more than 595 mAh with the constant discharge current of 700mA to the end voltage of 1.0V after the battery is fully charged.

**5.2.6 SELF-DISCHARGE**

The capacity shall be more than 490 mAh after the storage of 28 days for the fully charged battery.

**5.2.7 OVER-CHARGE I**

The battery shall not cause salting, leakage or deformation when charged at 78 mA for 48 hours and the capacity shall be more than 700 mAh.

**5.2.8 OVER DISCHARGE**

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

**5.2.9 LIFE-SPAN (CUSTOM)**

The capacity shall be more than 420 mAh after 500 cycles with the test conditions as follow:

*TEST CONDITION*

Cycle	Charge	Rest	Discharge
1 <sup>st</sup>	Charge at 0.15C for 12 hrs	None	Discharge at 0.25C for 2.33 hrs
2 <sup>nd</sup> – 48 <sup>th</sup>	Charge at 0.25C for 3.17 hrs	None	Discharge at 0.25C for 2.33 hrs
49 <sup>th</sup>	Charge at 0.25C for 3.17 hrs	None	Discharge to 1.0V/unit
50 <sup>th</sup>	Charge at 0.15C for 12 hrs	1 ~4 hrs	Discharge at 0.2C to 1.0V/unit



**5.2.10 LIFE-SPAN (EXPRESS)**

The battery shall supply 420 mAh at the 400th cycle under the conditions as follows.

<b>Charge</b>	<b>0.5C for 144 minutes (- <math>\Delta V = \underline{5}</math> mV)</b>
<b>Discharge</b>	<b>1C to 1.0V/unit</b>

**5.2.11 STORAGE**

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

**5.2.12 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.

**5.2.13 DROP TEST**

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

**5.2.14 SHORT CIRCUIT**

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

**5.2.15 INCORRECT POLARITY CHARGE**

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

**5.2.16 OVER CHARGE II**

The battery shall not explode when charged at 1C for 5 hours.

**6. SUGGESTION & ADVICE**

- A. The end-voltage is recommended at  $1.0 \pm 0.1$ V/cell so as not to cause memory effect.
- 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.



**Intec Industries Co., Ltd.**

Room 2703, Well Tech Centre,  
9, Pat Tat Street, San Po Kong,  
Hong Kong

Tel : (852) 2885 1100

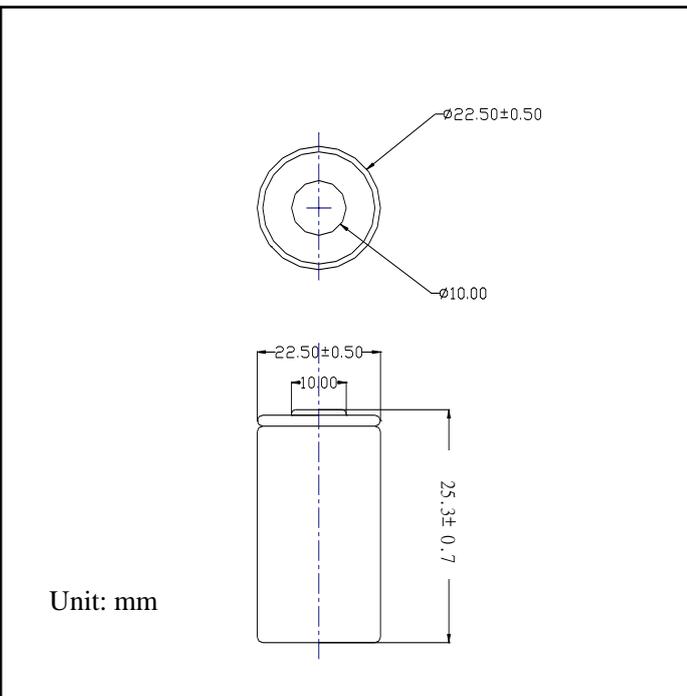
Fax : (852) 2947 0588

**SPECIFICATIONS**

<b>Nominal voltage</b>		<b>1.2V</b>		
<b>Capacity (mAh)</b>		<b>C/5</b>	<b>C</b>	
	<b>Nominal</b>	<b>700</b>	<b>595</b>	
	<b>Typical</b>	<b>720</b>	<b>612</b>	
<b>Diameter</b>		<b>0.89 ± 0.02 in</b> <b>22.5 ± 0.5 mm</b>		
<b>Height</b>		<b>1.00 ± 0.03 in</b> <b>25.3 ± 0.7 mm</b>		
<b>Weight</b>		<b>26g</b>		
<b>Internal impedance at 1000Hz.</b>		<b>32mΩ</b> <b>(After charge)</b>		
<b>Charge</b>	<b>Standard</b>	<b>70mA × 16hrs</b>		
	<b>Fast</b>	<b>350mA × 2.4hrs</b>		
	<b>Trickle</b>	<b>Max.</b>	<b>35mA</b>	
		<b>Min.</b>	<b>23mA</b>	
<b>Ambient temperature</b>	<b>Charge</b>	<b>Standard</b>	<b>-20°C ~ 45°C</b>	
		<b>Fast</b>	<b>0°C ~ 45°C</b>	
	<b>Discharge</b>	<b>-20°C ~ 60°C</b>		
	<b>Storage</b>	<b>-20°C ~ 30°C</b>		

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**

