

DANTONA INDUSTRIES, INC.  
P.O. BOX 3300  
3051 BURNS AVE.  
WANTAGH, NY 11793

SEALED NICKEL CADMIUM  
RECHARGABLE CELLS & BATTERIES

TO: \_\_\_\_\_

BST MODEL NO.: \_\_\_\_\_ -1/2D2400\_\_\_\_\_

CUSTOMER APPROVED P/N: \_\_\_\_\_

DATE OF SUBMISSION: \_\_\_\_\_

ATTACHMENT: \_\_\_\_\_ SPECIFICATION \_\_\_\_\_

TOTAL NO. OF PAGES: \_\_\_\_\_ 5 \_\_\_\_\_

SPECIFICATION NO.: \_\_\_\_\_

VERSION NO.: \_\_\_\_\_ 01 \_\_\_\_\_

<i>DRAWN</i>		<i>DATE</i>	
<i>APPROVED</i>		<i>DATE</i>	

(with company chop)

Please sign and return one copy to us

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## 1. APPLICATION

This specification applies to the Ni-Cd batteries.

Model: 1/2D2400

## 2. CELL AND TYPE

2.1 Cell: Sealed Ni-Cd Cylindrical Cell

2.2 Type: 1/2D2400

2.3 Size type: D/R20

2.4 IEC type: KR33/36

## 3. RATINGS

3.1 Nominal voltage: 1.2V

3.2 Nominal capacity: 2400mAh at 0.2CmA

3.3 Typical weight: 76g (unit cell)

3.4 Standard charge: 240mA×15hours

3.5 Rapid charge: 1200mA×2.4hours(Max)

3.6 Tickle current: 70~150mA

3.7 Discharge cut-off voltage: 1.0V

3.8 Temperature range for operation: (Humidity: Max.85%)

Standard charge: 0~+45°C

Rapid charge: +10~+40°C

Trickle charge: 0~+45°C

Discharge: -20~+65°C

3.9 Temperature range for storage: (Humidity: Max.85%)

Within 2 years: -20~+35°C

Within 6 months: -20~+45°C

Within a months: -20~+55°C

Within a week: -20~+65°C

## 4.ASSEMBLY & DIMENSIONS

Per attached drawing

## 5. PERFORMANCE

### 5.1 TEST CONDITIONS

The test is carried out with new batteries.

(within a month after delivery)

Ambient conditions:  
 Temperature:  $+20 \pm 5^{\circ}\text{C}$   
 Humidity:  $65 \pm 20\%$

## 5.2 TEST METHOD & PERFORMANCE

Test item	Unit	Specification	Conditions	Remarks
Capacity	mAh	$\geq 2400$	Standard charge/discharge	Up to 3 cycles are allowed
Open Circuit Voltage (OCV)	Volt	$\geq 1.25$	Rest for 1 hour after standard charge	1.25V/cell
Internal impedance	m $\Omega$	$\leq 12.0$	After fully charge (at 1000Hz)	Per cell
High rate discharge (0.5C)	minute	$\geq 110$	Standard charge and discharge at 0.5CmA	End voltage is 1.0V/pcs
Overcharge	mA	240(0.1C)	Continuous charge 28days	No leakage nor explosion
Charge retention	mAh	$\geq 1560(65\%)$	Standard charge; Storage: 28days Standard discharge	End voltage is 1.0V/pcs
Cycle life	cycle	$\geq 500$	IEC60285(1998)4.4.1	See note 2
Leakage	--	--	Standard charge then storage 14 days	No leakage nor deformation
Welding strength	Kgf	$\geq 1.5$	180° direction	

Note 1:

Standard charge: 240mA(0.1C)×15hours

Standard discharge: 480mA(0.2C) to 1.0V

Note 2:

IEC60285(1998)4.4.1 cycle life

Cycle number	Charge	Rest	Discharge
1	0.1CmA for 16h	None	0.25CmA for 2h20min
2-48	0.25CmA for 3h10min	None	0.25CmA for 2h20min
49	0.25CmA for 3h10min	None	0.25CmA to 1.0v/cell
50	0.1CmA for 16h	1-4hours	0.20CmA to 1.0v/cell

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Note: 50-cycles test as per above table is repeated. The discharge time of the 100<sup>th</sup>, 200<sup>th</sup>, 300<sup>th</sup>, 400<sup>th</sup>, 500<sup>th</sup> should be more than 3 hours respectively. (ambient temperature is  $20 \pm 5^{\circ}\text{C}$ )

### 5.3 Vibration

Cells shall be mechanically and electrically normal after vibration which has an amplitude of 4mm (0.1575inches) a frequency of 1000 cycles per minute, which should be continued in any directions during 60 minutes.

### 5.4 Shock

Cells shall be mechanically and electrically normal after being subjected to a drop from a height of 450mm (17.716inches) onto an oak board in a voluntary axis respectively 3 times.

### 5.5 Short

Cells shall not explode after 1 hour short-circuit test.

### 5.6 Incorrect polarity charging

Cells shall not explode after 5 hours of incorrect polarity charging at 0.5CmA.

## 6. PRECAUTION

6.1 We recommend you to set the cut-off voltage at 1.0V/cell.

6.2 If it is below 1.0V/cell, cells may have over-discharged or reverse charged.

6.3 Do not detect  $-\Delta V$  for first 5 minutes of charging.

6.4 The cells shall be delivered in discharged condition, before testing or using, the cells shall be correctly charged in accordance with this specification.

## 7. WARNING

7.1 Avoid direct soldering onto cells.

7.2 Observe correct polarity when connecting.

7.3 Do not charge with more than our specified current.

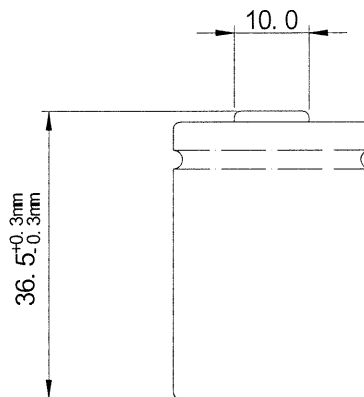
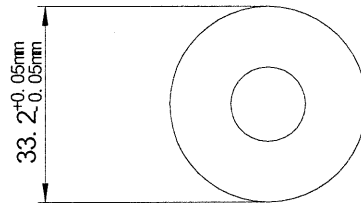
7.4 Use only within the specified working temperature range.

## 8. DANGER!

8.1 Avoid throwing cells into a fire or attempting to disassemble them. As the electrolyte inside is strong alkaline and can damage skin and clothes.

8.2 Avoid short-circuiting. It may be leakage.

-1/2D2400



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