



比亚迪股份有限公司
BYD COMPANY LIMITED

**SPECIFICATION FOR
HIGH TEMPERATURE NI-CD CELL
APPROVAL SHEET**

TO : _____
BYD MODEL NO : D-D4000H
CUSTOMER APPROVED P/N : _____
DATE OF SUBMISSION : 10-Nov-10
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VERSION NO : 1.0

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1. APPLICATION

This specification applies to the Ni -Cd batteries.

Model : D-D4000H

2. CELL AND TYPE

2.1 Cell : Sealed Ni –Cd Cylindrical Cell.

2.2 Type : D-D4000H

2.3 Size type: D

2.4 IEC type: /

3. RATINGS

3.1 Nominal voltage	:	<u> 1.2 </u>	V
3.2 Nominal capacity	:	<u> 4000 </u>	mAh/0.2CmA
3.3 Typical weight	:	<u> 125 </u>	g (unit cell)
3.4 Standard charge	:	<u> 400 </u>	mA(0.1C)×15hours
3.5 Rapid charge	:	<u> 2000 </u>	mA×2.5hours(Max.)
3.6 Trickle charge	:	<u> 200 </u>	mA(0.05C)×48hours
3.7 Discharge cut-off voltage	:	<u> 1.0 </u>	V(0.2CmA)
3.8 Temperature range for operation (Humidity: Max. 85%)			
	Charge		0~ +70℃
	Discharge		-5~ +70℃
3.9 Temperature range for storage (Humidity: Max. 85%)			
	Within 2 years		-20~ +45℃
	Within 6 months		-20~ +55℃
	Within a month		-20~ +60℃
	Within a week		-20~ +70℃

Note 1: Rated capacity figures are based on single cell performance.

Note 2: We recommend cells or batteries are charged and discharged at least once every 6 months.

4. PERFORMANCE**4.1 TEST CONDITIONS**

The test is carried out with new batteries.(within a month after delivery)

Ambient conditions

Temperature : +20±5℃

Humidity : 65±20%

Standard charge :400mA(0.1C)×15hrs

Standard discharge :0.2C to 1.0V

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4.2 TEST METHOD & PERFORMANCE

Test	Unit	Specification	Conditions	Remarks
Capacity	mAh	≥4000	Standard charge/discharge	up to 3 cycles are allowed
Open Circuit Voltage(OCV)	Voltage (V)	≥1.25	After 1 hour standard charge	
Internal impedance	mΩ/cell	≤10	Upon fully charge (1KHz)	
High rate discharge(1C)	minute	≥48(3200mAh)	Standard charge before discharge	End Voltage is 1.0V/Cell
Discharge time after overcharge	hour	≥4.25	200 mA(0.05C) charge 28days,then discharge at 0.2C to 1.0V	Ambient TEMP 25°C±2°C
Charge Retention	mAh	≥2800	standard charge; storage: 28 days Standard discharge	
Leakage		No leakage nor deformation	Fully charge at 2000 mA(0.5C), then storage 14 days	

4.3 Humidity

The cells shall not leak during the 14 days when it is submitted to the condition of a temperature of 33±3 °C and a relative humidity of 80±5% (salting is allowed).

4.4 Vibration

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

4.5 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.

4.6 Short

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

4.7 Incorrect polarity charging

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

5. PRECAUTION

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

5.2 If the cut-off voltage is above 1.1V/cell, cells may be underutilized resulting insufficient use of the available capacity.

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

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

5.5 The cells shall be delivered in discharged condition, Before testing or using, the cells shall be correctly charged in accordance with this specifications.

6. WARNING

6.1 Avoid direct soldering onto cells.

6.2 Observe correct polarity when connecting.

6.3 Do not charge with more than our specified current.

6.4 Use only within the specified working temperature range.

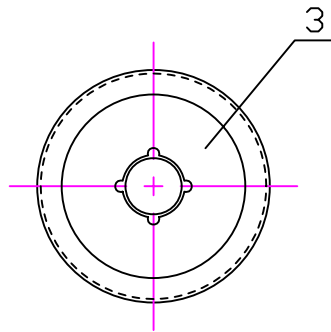
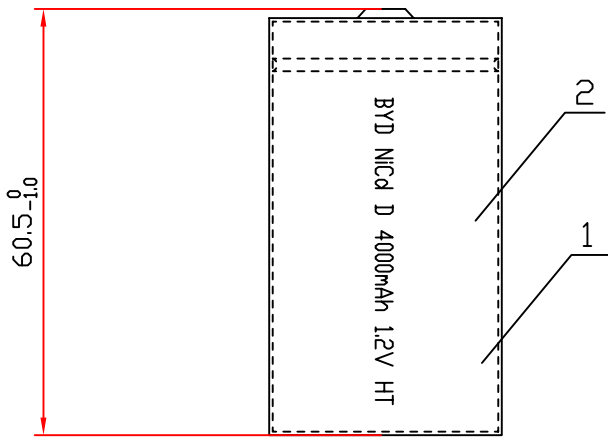
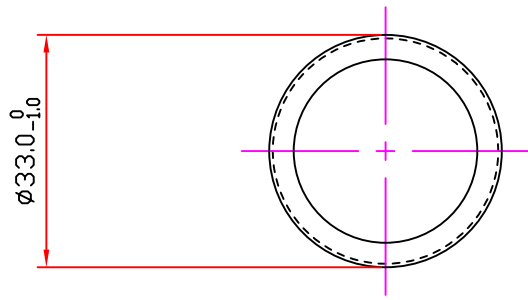
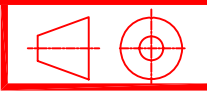
7. DANGER!

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

7.2 Avoid short circuiting. It may be leakage.

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NO.	NAME	SIZE	QTY	NOTE	SAP NO
3	WASHER	D	1	WHITE	413877
2	PVC	51X70	1	WHITE	400854
1	CELL	D	1	NI-CD	



比亚迪股份有限公司
BYD COMPANY LIMITED

DRAWN	CUI-MIAD	DATE	2010/11/10
CHECKD	GUOQING-LI	DATE	2010/11/10
APPROVED	JIANGUD-TANG	DATE	2010/11/10
SCALE	/	UNIT	MM