

SEALED METAL HYDRIDE

RECHARGEABLE CELLS & BATTERIES APPROVAL SHEET

ТО	:	
BYD MODEL NO	:	H-SC3000P
CUSTOMER APPROVED P/N	:	

DATE OF SUBMISSION: 16-Jan-09

ATTACHMENT : SPECIFICATION

TOTAL NO. OF PAGES: 5

SPECIFICATION NO: S-HSC3000P01

VERSION NO: 1.0

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Approved	Customer Dept.	ZHIJIAN-LI				
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(with company chop)
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BYD COMPANY LIMITED

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1. APPLICATION

This specification applies to the Ni-MH batteries.

Model: H-SC3000P

2. CELL AND TYPE

- 2.1 Cell : Sealed Ni-MH Cylindrical Cell.
- 2.2 Type : H-SC3000P
- 2.3 Size type: SC
- 2.4 IEC type: HR23/43

3. RATINGS

- 3.1 Nominal voltage : 1.2 V
- 3.2 Nominal capacity : 3000 mAh/0.2CmA (Note 1)
- 3.3 Typical weight : 55.5 g (unit cell)
 3.4 Standard charge : 300 mA×15hours
- 3.5 Rapid charge : 3000mA×1.2hours(Max.)

(with-ΔV, Time, Temperature control system)

Trickle current : 90 ~ 150 mA

- 3.6 Discharge cut-off voltage 1 V
- 3.7 Temperature range for operation (Humidity: Max. 85%)

Standard charge $0 \sim +45$

Rapid charge $+10 \sim +40$ Trickle charge $0 \sim +45$

Discharge $-5 \sim +65$

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

Within 1 years (Note 2) - 20 ~ +25

Within 6 months $-20 \sim +35$

Within a months - 20 ~ +45

Within a week $-20 \sim +55$

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

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

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±5 Humidity: 65±20%

Standard charge: 300mA(0.1C)×15hrs Standard discharge: 0.2C to 1.0V

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5.2 TEST METHOD & PERFORMANCE

Test	Unit	Specification		Conditions	Remarks		
Capacity	mAh	Typical	3000	Standard	up to 3 cycles		
Capacity		Minimum	2800	charge/discharge	are allowed		
Open Circuit Voltage(OCV)	Voltage (V)	≥1.25		≥1.25		After 1 hour ≥1.25 standard charge	
Internal impedance	mΩ/cell	≤12		Upon fully charge (1KHz)			
High rate discharge(1C)	minute	≥48(2400mAh)		Standard charge before discharge	End Voltage is 1.0V/Cell		
Discharge current (C)	А	≤9(3C)		Maximum continuous discharge current			
Overcharge		no leakage nor explosion		300 mA(0.1C) charge for 28 days			
Charge Retention	mAh	≥1950		standard charge; storage: 28 days Standard discharge			
Cycle Life	cycle	500		IEC61951-2	see note 3		
Leakage		no leakage nor deformation		Fully charge at 3000 mA(1C), then storage 14 days			

Note 3 IEC61951-2 cycle life

Cycle number	Charge	Rest	Discharge
1	0.1CmA for 16h	none	0.25CmA for 2.33h
2~48	0.25CmA for 3.17h	none	0.25CmA for 2.33h
49	0.25CmA for 3.17h	none	0.25CmA to 1.0V/cell
50	50 0.1CmA for 16h		0.20CmA to 1.0V/cell

50-cycle test as per above table is repeated . The discharge time of the 100th, 200th, 300th, 400th, 500th should be more than 3 hours respectively. (Ambient temperature is 20±5)

5.3 Humidity

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

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5.4 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

5.5 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.

5.6 Short

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

5.7 Incorrect polarity charging

Cells shall not explode after 5 hour of incorrect polarity charing at 1 CmA.

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 V for first 5 minutes of charging.
- 6.4 The cells shall be delivered in charged condition, Before testing or using, the cells shall be correctly charged in accordance with this specifications.

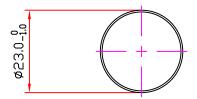
7. WARNING

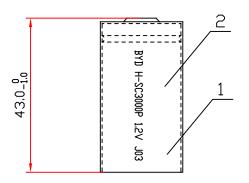
- 7.1 Avoid direct soldering onto cells.
- 7.2 Observe correct polarity when connecting.
- 7.3 Do not charge with more than our specified current.
- 7.4 Use only within the specified working temperature range.

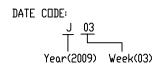
8. DANGER!

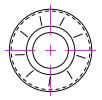
- 8.1 Avoid throwing cells into a fire or attempting to disassemble them. As the electrolyte inside is strong alkaline and can damage skin and clothes.
- 8.2 Avoid short circuiting. It may be leakage.
- 8.3 Not to be used in sealed conditions for Ni-MH cells.











						BYD 比亚迪股份有限公司 BYD COMPANY LIMITED				
_						DRAWN	ZHANZHENG-LI	DATE	2009/01/16	
┢						CHECKD	ZHIJIAN-LI	DATE	2009/01/16	
2	PAPER TUBE	20	1		429900	APPROVED	JIANGUD-TANG	DATE	2009/01/16	
1	CELL	2C	1	NI-MH		SCALE		UNIT	ММ	
N□.	NAME	SIZE	QTY	NOTE	SAP NO	SCALE	SURLL	ONTI	141141	