Revision：4.2

Product Specification

Product Model: Nickel-Metal Hydride Battery

Product Type: MH-C5000

Draw up： Technical Department

Date： 2009-7-7

AA Portable Power Corp.
Tel:1-510-525 -2328 Fax:1 -510-525-4728
Web address: http://www.batteryspace.com E-Mail:sales@batteryspace.com.com

1、 SCOPE

This specification governs the performance of the following Nickel-Metal Hydride cylindrical cell and its stack-up battery.

Model：MH-C5000

Cell Size：Button Top (25.2±0.1×49.5±0.5)mm
Flat Top (25.2±0.1×49.0±0.5)mm

2 、DATA OF STACK UP BATTERIES

All data involve voltage and weight of stack-up batteries are equal to the value of unit cell multiplied by the number of unit cell which consisted in the stack-up batteries

Example ： Stack-up batteries consisting three unit cells

Nominal voltage of unit cell=1.2V

Nominal voltage of stack-up batteries =1.2V×3=3.6V

3、 RATINGS

Description	Unit	Specification	Condition	
Nominal Voltage	V/cell	1.2	Unit cell or stack-up batteries	
Minimum Capacity	mAh	4500	Standard Charge/Discharge	
Typical Capacity	mAh	5000	Standard Charge/Discharge	
Standard Charge	mA	450 (0.1C)	T_1=20±5℃(See Note 1)	
	hour	14~16		
Fast Charge	mA	1350 (0.3C)	-Δ V=0~5mV/cell , Timer Cutoff=120%nominal capacity , Temp.Cutoff=55℃, dT/dt=0.8℃/min，T_1=20±5℃	
	hour	4 approx (See Note 2)		
Trickle Charge	mA	(0.03C)~(0.05C)	T_1=20±5℃	
Standard discharge	mA	900 (0.2C)	T_1= 20±5℃ Humidity：Max.85%	
Discharge Cut-off Voltage	V/cell	1.0		
Storage Temperature	℃	-20~25	Within 1 year*	State：30% charge ， Max Humidity：85%
		-20~35	Within 6 months	
		-20~45	Within 1 month	
		-20~55	Within 1 week	
Typical Weight	Gram	84.0	unit cell	

*To keep the best performance for those not used for a long time,we recommend to charge the cells/batteries at least 30% after discharge entirely in every 6 months.

Reserves the right to alter or amend the design, model and specification without prior notice.

4、 PERFORMANCE

Unless otherwise stated, tests should be done within one month of delivery under the following conditions：

Ambient Temperature ： 20±5℃

Relative Humidity ： 65±20%

Notes： Standard Charge/Discharge conditions：

Charge： 450 mA(0.1C)× 14 hours

Discharge： 900 mA(0.2C) to 1.0V/cell

Test	Unit	Specification	Condition	Remarks
Capacity	mAh	≥ 4450	Standard Charge/ Discharge	up to 3 cycles are allowed
Open Circuit Voltage(OCV)	V	≥ 1.25	Within l hour after standard charge	
Internal Impedance	mΩ	≤ 14	Upon fully charged(lKHz)	
High Rate Discharge(1C)	min	≥ 51	Standard Charge, l hour rest before discharge by 1C to 1.0V/cell	up to 3 cycles are allowed
Charge Retention	mAh	≥ 2700 (60%)	Standard Charge,Storage： 28 days Standard Discharge	T_1=20±5℃
IEC Cycle Life	Cycle	≥500	IEC61951-2(2003)7.4.1.1	see Note 3
Leakage		No leakage nor deformation	Fully charged at : 450 mA for 48 hrs	
Vibration Resistance		Change of voltage should be less than 0.02V/cell,Change of impedance should be less than 5 milli-ohm/cell	Charge the battery at 0.1C for 14hrs,then leave for 24hrs,check battery before/after vibration,amplitude 1.5mm,vibration 3000 CPM,any direction for 60mins.	
Impact Resistance		Change of voltage should be less than 0.02V/cell,change of impedance should be less than 5 milli-ohm/cell	Charge the battery at 0.1C for 14hrs,then leave for 24hrs,check battery before/after dropped,height 50 cm wooden board(thickness 30mm)direction not specified,3 times.	

5、CONFIGURATION, DIMENSIONS AND MARKINGS

Please refer to the attached drawing.

6、EXTERNAL APPEARANCE

The cell/battery shall be free from cracks, scars, breakage, rust, discoloration, leakage or deformation.

7、WARRANTY

3 months warranty against workmanship and material defects.

8、CAUTION

[1]Reverse charging is not acceptable.

[2]Charge before use. The cells/batteries are delivered in an uncharged state.

[3]Do not charge/discharge with more than our specified current.

[4]Do not short circuit the cell/battery Permanent damage to the cells/batteries may result.

[5]Do not incinerate or mutilate the cells/batteries.

[6]Do not solder directly to the cells/batteries.

[7]The expected life may be reduced if the cells/batteries are subjected to adverse conditions as: extreme temperature, deep cycling, excessive overcharge/ over-discharge.

[8]Store the cells/batteries in a cool dry place. Always discharge batteries before packing.

Notes：

[1] T_1: Ambient Temperature.

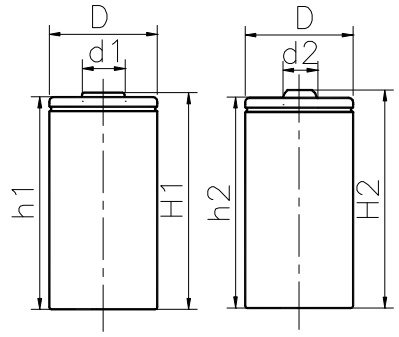
[2] Approximate charge time from discharged state, for reference only.

[3] IEC61951-2(2003)7.4.1.1 Cycle Life:

Cycle No.	Charge	Rest	Discharge
1	0.1C×16h	None	0.25C×2h20min
2-48	0.25C×3h10min	None	0.25C×2h20min
49	0.25C×3h10min	None	0.25C to 1.0V/cell
50	0.1C×16h	1-4h	0.2C to 1.0V/cell
Cycle l to 50 shall be repeated until the discharge duration on any 50th cycle becomes less than 3 h.			

AA Portable Power corp.

MODEL No: MH-C5000 **Description:** 5000 mAh SIZE NI-MH C

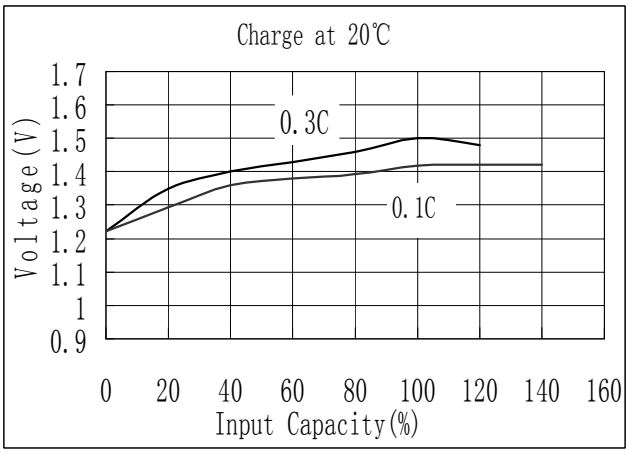


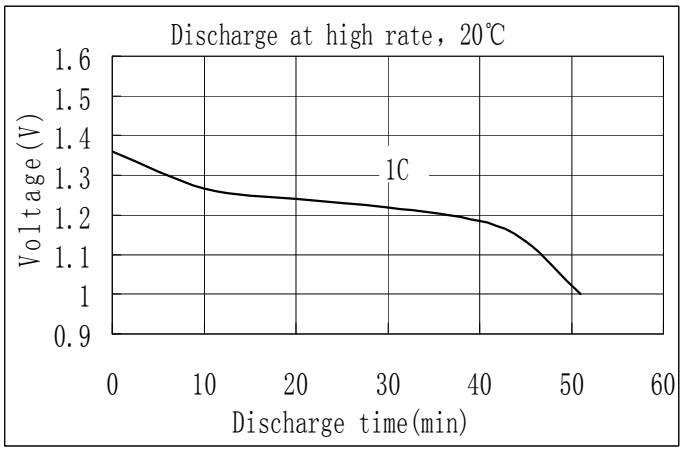
Dimensions(without Tube) (mm)

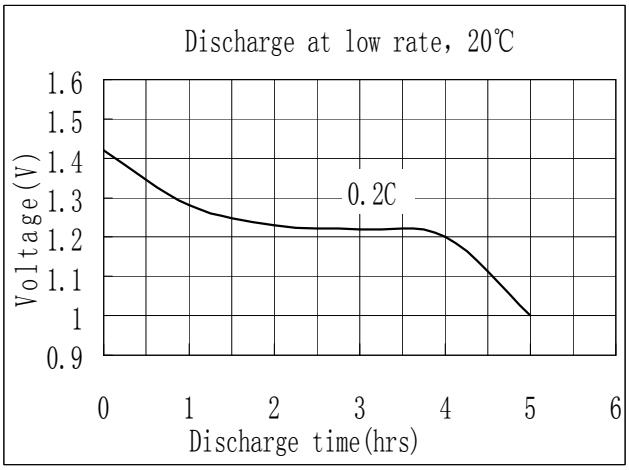
D	25.20±0.10		
d_1	8.50±0.08	d_2	6.00±0.08
H_1	49.00±0.50	H_2	49.50±0.50
h_1	48.50±0.50	h_2	47.50±0.50

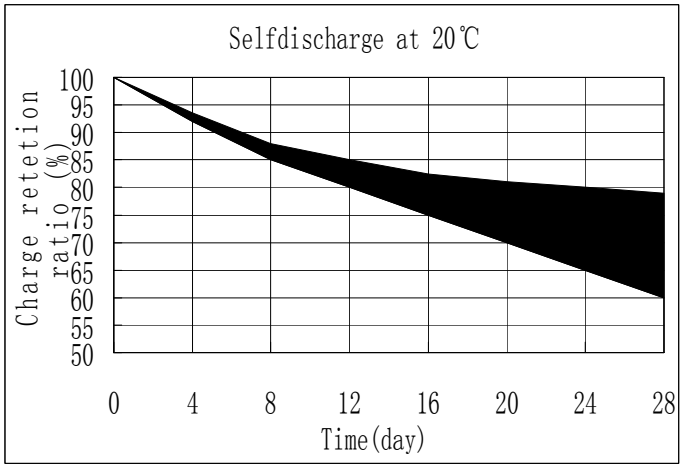
Specification

Minimum Capacity			4500 mAh
Nominal Voltage			1.2 V
Charge current		Standard	450 mA
		Fast	1350 mA
Charge time		Standard	14~16 Hrs
		Fast	4 Hrs
Ambient Temperature	Charge	Standard	0℃~45℃
		Fast	10℃~45℃
	Discharge		-20℃~60℃
	Storage		-20℃~55℃
Internal Impedance(mΩ) (After Charge)			≤ 14
Weight			84.0 g









Reserves the right to alter or amend the design, model and specification without prior notice.