

## Model: PX6 (Low Capacity)

Issue Date: 2011.10.18

[illegible]

## 1. Scope:

This specification is applicable to the performance of the following Power-Xtra Nickel-Metal Hydride Cylindrical Cell.

## 2. Law & Regulation Compliances:

This product complies with EU's battery directive (2006/66/EC).

Packaging materials comply with EU's directive on packaging materials and waste (94/62/EC)

## 3. General:

### 3.1 Type designation

Power-Xtra PX6 130/140/150/160/170/180/185  
GP 130/140/150/160/170/180/185 AAH

### 3.2 Chemical system: Ni /KOH-H<sub>2</sub>O/ MH

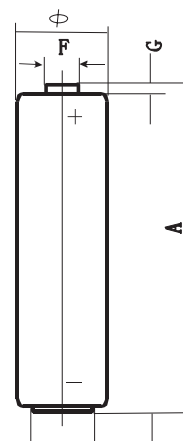
### 3.3 Nominal voltage: 1.2 V

### 3.4 Weight: (g)

Designation	PX6 130	PX6 140	PX6 150	PX6 160	PX6 170	PX6 180	PX6 185
Approximate	22	23	24	25	26	26	27

### 3.5 Dimension (mm)

/	min	max
Φ	13.5	14.5
A	49.5	50.5
F	4.2	5.5
G	1.0	/



### 3.6 Capacity: (mAh)

Designation	PX6 130	PX6 140	PX6 150	PX6 160	PX6 170	PX6 180	PX6 185
Approximate	1300	1400	1500	1600	1700	1800	1850

Remark: Discharged at 0.2C<sub>5</sub>, 24h/d, 20°C, e.v.= 1.0V

### 3.7 Storage Temperature: -20~35°C at discharge state.

## 4. Appearance

The battery visually inspected by unaided eye 30cm away from battery. The battery shall be free from dents, scratch, rust and extruded internal compounds, such as sealing compounds and etc, and serious displacement of artwork. Appearance defects shall not be observed that may adversely affect actual use or performance of batteries.

## 5. Electrical Characteristics

Unless otherwise stated, all measurements are to be performed at a  
**Standard Environment** of

**$20 \pm 2^{\circ}\text{C}$**   
 **$60 \pm 15\% \text{ RH}$** .

All samples are normalized for 8 hours at least at the above environment prior to measurement.  
The digital voltmeter (DCM) is with the precision of 1mV (internal resistance not less than 1 Megohm).

Notes: Standard Charge/Discharge Condition:

Charge:  $0.1C_5 \text{ mA} \times 16\text{hrs}$       Discharge:  $0.2C_5 \text{ mA}$  to 1.0V/cell  
e.g. HR6 130: Charge:  $130\text{mA} \times 16\text{hrs}$       Discharge:  $260\text{mA}$  to 1.0V/cell

### 5.1 Performance :

Test	Unit	Specification	Condition	Remarks
Open Circuit Voltage (OCV)	V	$\geq 1.25$	Within 1hr after standard charge	Unit cell

### 5.2 Service Performance

Test	Unit	Specification	Condition	Remarks
Internal impedance( $R_i$ )	$\text{m}\Omega$	$\leq 50$	Upon fully charge (1KHZ)	Unit cell
Standard Discharge ( $0.2C_5$ )	minute	$\geq 300$	Standard Charge , 1hr rest before discharge	
High Rate Discharge ( $1C_5$ )	minute	$\geq 42$	Standard Charge , 1hr rest before discharge	
Overcharge	N/A	No leakage nor explosion	$0.1C_5 \text{ mA}$ charge for 1yr	
Charge Retention	$\text{mAh}$	$\geq 60\%C_5$ (e.g. HR6 130: 780)	Standard charge Storage: 28 days at RT or 7 days at $45^{\circ}\text{C}$ Standard discharge	
IEC Cycles Test	Cycle	$> 500$	IEC 61951-2 (2003)	(see note 3)
Accelerated Cycles Life	Cycle	$\geq 300$	Charge: $0.5C_5 \text{ mA}$ Discharge: $0.5C_5 \text{ mA}$ to 1.0V/cell End of life: 80% of nominal capacity	Cycling charging cut off condition: $-\Delta V = 0\sim 5\text{V/cell}$ or time cut off = 105% of input capacity

## 6. Leakage Characteristics

### 6.1 Over charge leakage test

Samples: 10pcs

Test conditions: Fully charged at  $1C_5 \text{ mA}$  (e.g. HR6 130: fully charged at 1300mA), stand for 14 days

Requirement: No leakage or deformation.  
Criterion: 0/10

## **7. Security Characteristics**

### 7.1 Short-circuit explosion-proof characteristics

Samples: 10pcs

Test conditions: After standard charge, short circuit the cell at 20+/-2°C until the cell temperature returns to ambient temperature. (The resistance of the inter-connecting circuitry shall not exceed 0.1 ohm.)

Requirement: No fire and No explosion; Leakage/deformation is allowable.

Criterion: 0/10

## **8. Warranty:**

1 year limited warranty against manufacture and material defects.

## **9. Configurations, Dimensions and Markings:**

Please refer to the related drawing.

## **10. Caution:**

1. Batteries should be charged prior to use
2. For charging methods please referred to our technical handbook
3. Use the correct charger for Ni-Cd or Ni-MH batteries
4. Do not reverse charge batteries
5. Do not subject batteries to adverse condition such as extreme temperature, deep cycling and excessive over charge/over discharge.
6. Avoid batteries being used in an airtight compartment. Ventilation should be provided inside the battery compartment, otherwise batteries may generate hydrogen gas, which could cause an explosion if exposed to an ignition source
7. Do not attempt to take batteries apart or subject them to pressure or impact. Heat may be generated or fire may result. The alkaline electrolyte is harmful to eyes and skin, and it may damage clothing upon contact.
8. Keep away from children. If swallowed, contact a physician at once.
9. Do not short circuit batteries, permanent damage to batteries may result
10. Do not incinerate or mutilates batteries, may burst or release toxic material.
11. Do not solder directly to cells or batteries.
12. Store batteries in a cool dry place.
13. If find any noise, excessive temperature or leakage from a battery, please stop its use.
14. When using a new battery for the first time or after long term storage, please fully charge the battery before use
15. When using a new battery in use with semi-used batteries, over-discharge may occur.
16. Do not mix new batteries in use with semi-used batteries, over-discharge may occur.
17. When connecting a battery pack to a charger, ensure correct polarity.
18. When the battery is hot, please do not touch it and handle it, until it has cooled down.
19. Do not remove the outer sleeve from a battery pack nor cut into its housing.
20. When find battery power down during use, please switch off the device to avoid over discharge.

21. Unplug a battery by holding the connector itself and not by pulling at its cord.
22. After use, if the battery is hot, before recharging it, cool it in a well-ventilated place out of direct sunlight.
23. Never put a battery into water or seawater

- Notes:
1. Ta: Ambient Temperature.
  2. Approximate charge time from discharged rate, for reference only.
  3. IEC61951-2(2003) Cycle Life Test:

Cycle No.	Charge	Rest	Discharge
1	$0.1C_5 \times 16\text{hrs}$	none	$0.25 C_5 \times 2\text{hrs}20\text{mins}$
2-48	$0.25C_5 \times 3\text{hrs}10\text{mins}$	none	$0.25 C_5 \times 2\text{hrs}20\text{mins}$
49	$0.25C_5 \times 3\text{hrs}10\text{mins}$	none	$0.25 C_5$ to 1.0V/cell
50	$0.1C_5 \times 16\text{hrs}$	1-4hr(s)	$0.2 C_5$ to 1.0V/cell
Cycle 1 to 50 shall be repeated until the discharges duration on any 50th cycle becomes less than 3hrs			