

1 、 SCOPE

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

ORN Model : SC2000

Cell Size: SC(22.0±0.1×42.0±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
Nominal Capacity	mAh	2000	Standard Charge/Discharge
Standard Charge	mA	200 (0.1C)	T ₁ =20±5°C (See Note 1)
	hour	14~16	
Fast Charge	mA	1000 (0.5C)	- ΔV=0~15mV/cell , Timer Cutoff=120%nominal capacity , Temp.Cutoff=55°C , dT/dt=0.8°C/min, T ₁ =20±5°C
	hour	2.4 approx (See Note 2)	
Trickle Charge	mA	(0.03C)~(0.05C)	T ₁ =20±5°C
Standard discharge	mA	400 (0.2C)	T ₁ = 20±5°C Humidity: Max85%
Discharge Cut-off Voltage	V/cell	1.0	
Storage Temperature	°C	-20~30(Within 1 year)*	Discharged state Humidity: Max85%
		-20~40(Within 6 months)	
		-20~50(Within 1 month)	
		-20~60(Within 1 week)	
Typical Weight	Gram	47	unit cell

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

ORN 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: 200 mA(0.1C)× 14 hours

Discharge: 400 mA(0.2C) to 1.0V/cell

Test	Unit	Specification	Condition	Remarks
Capacity	mAh	≥ 2000	Standard Charge / discharge	up to 3 cycles are allowed
Open Circuit Voltage(OCV)	V	≥ 1.25	Within 1 hour after standard charge	
Internal Impedance	mΩ	≤ 14	Upon fully charged(1KHz)	
High Rate Discharge(1C)	min	≥ 51	Standard Charge, 1 hour rest before discharge by 1C to 1.0V/cell	up to 3 cycles are allowed
Charge Retention	mAh	≥ 1300 (65%)	Standard Charge,Storage: 28 days,Standard Discharge	T ₁ =20±5℃
IEC Cycle Life	Cycle	≥500	IEC61951-1(2003)7.4.1.1	see Note 3
Leakage		No leakage nor deformation	Fully charged at 200 mA for 28 days	
Vibration Resistance		Change of voltage should be less than 0.02V/cell,change of impedance should be less than 5milliohm/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 5milliohm/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.	

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

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

One year limited 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.

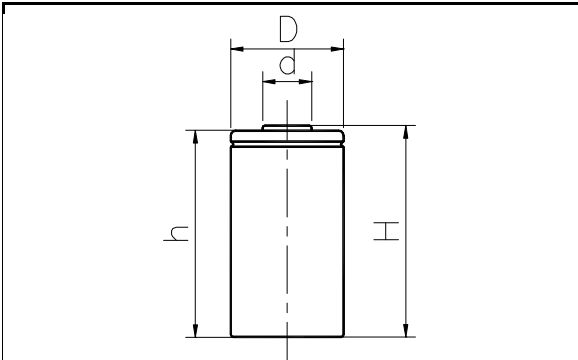
Cycle No.	Charge	Rest	Discharge
1	0.1C×16h	None	0.25C×2h20min
2-48	0.25C×3h10min	None	0.25C×2h20min
49	0.25C×3h10min	None	0.25C to 1.0V/cell
50	0.1C×16h	1-4h	0.2C to 1.0V/cell

Cycle 1 to 50 shall be repeated until the discharge duration on any 50th cycle becomes less than 3 h.

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

MODEL No: ORN-SC2000

Description: 2000 mAh SIZE NI-Cd SC

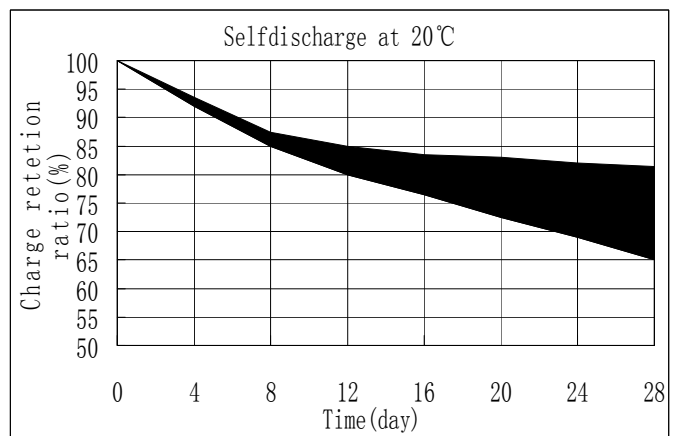
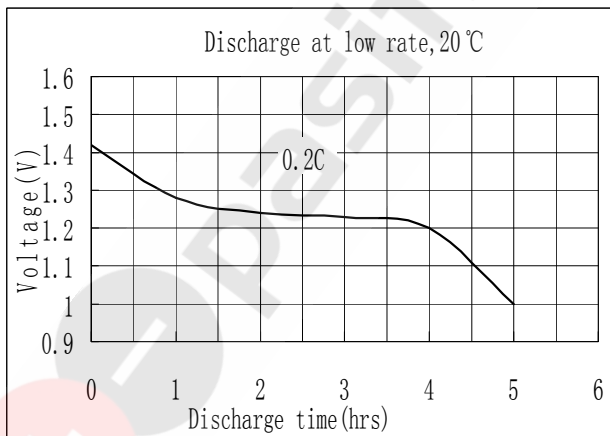
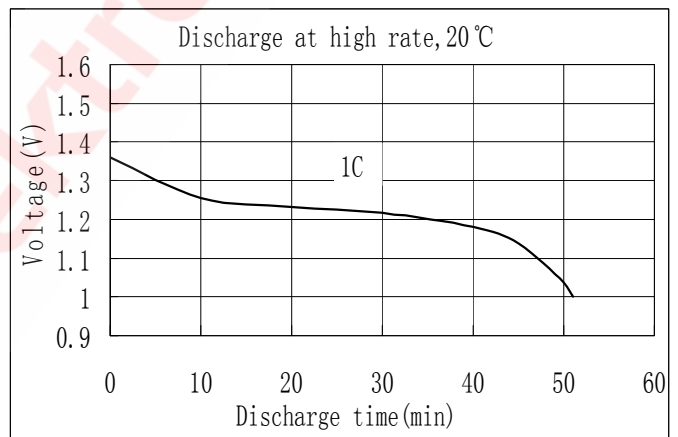
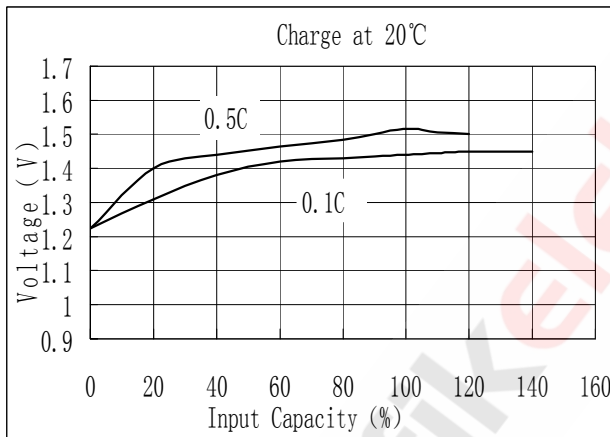


Dimensions(without Tube) (mm)

D	22.00 ± 0.10
d	10.00 ± 0.08
H	42.00 ± 0.50
h	41.00 ± 0.50

Specification

Nominal Capacity		2000 mAh
Nominal Voltage		1.2 V
Charge current	Standard	200 mA
	Fast	1000 mA
Charge time	Standard	14~16 Hrs
	Fast	2.4 Hrs
Ambient Temperature	Charge Standard	0°C~45°C
	Charge Fast	10°C~45°C
	Discharge	-30°C~60°C
Storage		-20°C~60°C
Internal Impedance(mΩ) (After Charge)		≤ 14
Weight		47 g



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