

## Lithium-Ion Rechargeable Battery

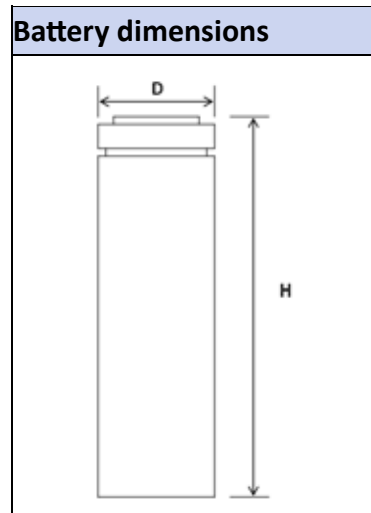
Primary characteristics	
Parameter	Value
Nominal voltage	3.6V
Rated capacity	5000mAh

## Scope

The purpose of this product specification is to provide technical information for the rechargeable Lithium-ion cylindrical battery INR21700-50M.

The test shall be conducted in strict accordance with the method specified in this specification.

If you have any objection to the test items or test methods, please contact Akyga Battery.



Specification table		
Parameter	Value	
Model	INR21700-50M	
Typical voltage	3.6V	
Rated capacity	Typical	5000mAh
	Minimum	4950mAh
Standard charge	0.5C, 4.2±0.05V, 0.1A cut-off	
Rapid charge	1C	45°C>T≥15°C
	0.5C	15°C>T≥5°C
	0.1C	5°C>T≥0°C
Standard continuous Discharge	1C (5000mA), 2.5V, cut-off	
Maximum continuous Discharge	0.5C (2500mA)	60°C >T≥45°C
	1C (5000mA)	45°C >T≥35°C
	3C (15000mA) (not for cycle life)	35°C >T≥15°C
	2C (10000mA)	15°C >T≥0°C
	1C (5000mA)	0°C>T≥-20°C
Charge/Discharge voltage range	4.20 ~2.5V	
Operation Temperature	Charge:	0~45°C
	Discharge:	-20~60°C
Storage Temperature	3 - 12 months	-20 °C ~ +20°C
	1 - 3 months	-20 °C ~ +45°C
Cycle life	Discharge capacity (800th Cycle) ≥70% of 1st Cycle Capacity	
Size	Diameter	21.65 ± 0.2 mm
	Height	70.95 ± 0.2 mm
Weight Approx	< 73g	

## Notes:

Rated capacity test conditions: Charge: 0.5C, 4.2V, CCCV 0.02C (100mA) cut-off  
Discharge: 0.2C (1000mA), 2.5V, cut-off voltage

Cycle life: Perform 0.5C/1C (2500mA/5000mA, 4.2~2.75V, charge cut-off current 500mA) cycle for 800 times at room temperature, and record the final state of the cell after cycling. Note: During the cycle process, the rest time is 15 min after charge, and 15 min after discharge.

## Standard Test condition:

Unless otherwise specified, all tests stated according to following:

- Temperature: 25±2°C; Humidity: ≤85%RH
- Use standard charge current and standard discharge current
- The cell used in the test is the cell sampled within one week of delivery

### 1. Temperature dependence of discharge capacity

Perform standard charge and discharge to obtain initial capacity at 25±2°C. Let the standard charged cell under 55±2°C (or -20±2°C) rest for 5h (or 24h). After that, the discharge capacity is measured at 1C rate (5000mA) under the corresponding temperature (55±2°C or -20±2°C). The discharge cut-off voltage under 55±2°C and -20±2°C is 2.5V.

Temperature	Discharge Efficiency
25 °C	100%
55 °C	≥95%
-20 °C	≥70%

**Note:** Relative capacity is divided by the 0.2C discharge capacity at 25°C

### 2. Storage

The Li-Ion battery pack should be stored in a dry (0~50%RH) and non-corrosive gas environment, do not allow the cell to bear any pressure, and there should be no condensed liquid attached to the surface of the cell.

## Mechanical Characteristics

### 1. Drop test

Test method: Each fully charged cell is dropped three times from a height of 1.0m onto a concrete floor at 20±5°C. After standard charge, drop the cell with both ends from a height of 1.0m onto the cement floor. The cell shall be observed for 1h afterwards.

Criteria: no fire, no explosion, no leakage

### 2. Heating

After standard charge, put the cell in an oven at a heating speed of 5°C/min until the temperature of the oven reach 130°C. Keep the cell in the oven at 130°C for 30 minutes then stop heating. The cell shall be observed for 1h afterwards.

Criteria: no fire, no explosion

### 3. Seawater immersion

After standard charge, immerse the cell completely in 3.5wt%NaCl solution for 2h. The cell shall be observed for 1h afterwards.

Criteria: no fire, no explosion

**Caution**

- Cells should be stored away from infants and toddlers. If cell swallowing occurs, seek medical attention immediately.
- Do not put cells in microwave ovens or other cooking utensils. Cells can catch fire due to microwave heating and electrical shock, to emit smoke, explosion, or emit heat.
- Don't mix it with other cells. Cells should not be mixed with other cells of different capacities, chemical systems or manufacturers. Don't Connect to other cells or mix other cells. Cells can catch fire, smoke, explode or emit heat.
- Do not use abnormal cells. Discontinue use if there are obvious abnormalities, such as odor, fever, deformity, or discoloration
- If the charging process does not end, stop charging. the cell cannot be charged within the specified time, please stop charging
- Do not use drain cells near flame. If the cell or cell with liquid running out produces a pungent odor, keep cells away from flame, it can cause fire or explosion.
- Do not touch the leaky cell. If fluid from the cell leaks into the eye, it can cause serious damage, flush immediately with fresh water and seek medical advice.
- in order to avoid short circuit or damage, please tightly pack the cell into a box or carton.

**Disclaimer**

Akyga battery reserves the right to make changes without notice to any product specification herein, to make corrections, modifications, enhancements or other changes. Akyga battery or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies. Data sheet specifications and its information contained are intended to provide a product description only. "Typical" parameters which may be included on Akyga battery data sheets and/ or specifications can and do vary in different applications and actual performance may vary over time. Akyga battery does not assume any liability arising out of the application or use of any product or circuit. Akyga battery products are not designed, intended or authorized for use in medical, life-saving implant or other applications intended for life-sustaining or other related applications where a failure or malfunction of component or circuitry may directly or indirectly cause injury or threaten a life without expressed written approval of Akyga battery. Customers using or selling Akyga battery components for use in such applications do so at their own risk and shall agree to fully indemnify Akyga battery and its subsidiaries harmless against all claims, damages and expenditures.