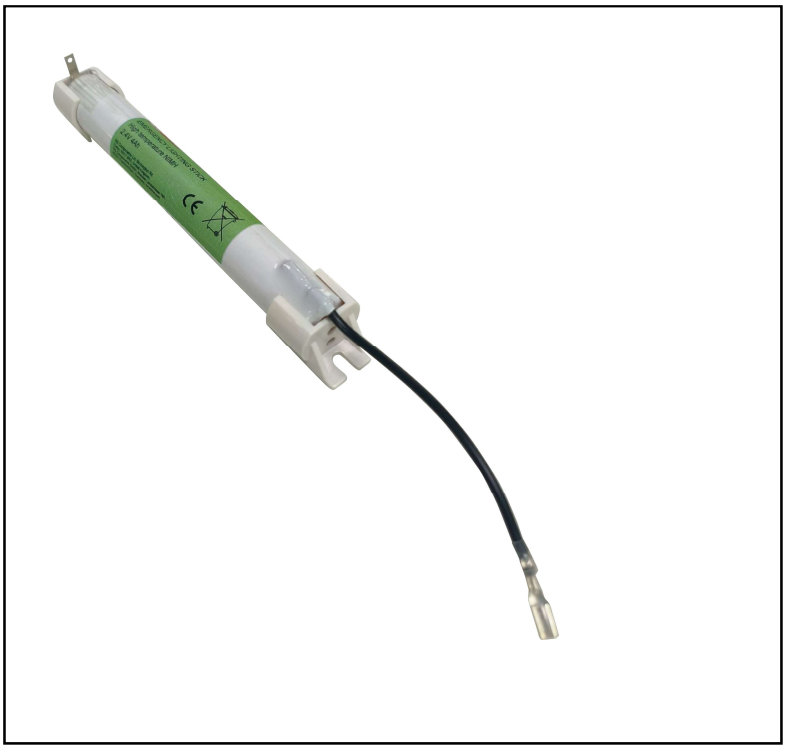
Features

- High temperature
- High Capacity

RS PRO Rechargeable Battery

Nickel - Metal Hydride Battery Pack 2.4V 4000 mAh 18670 x2

RS Stock No.: 0677108



RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

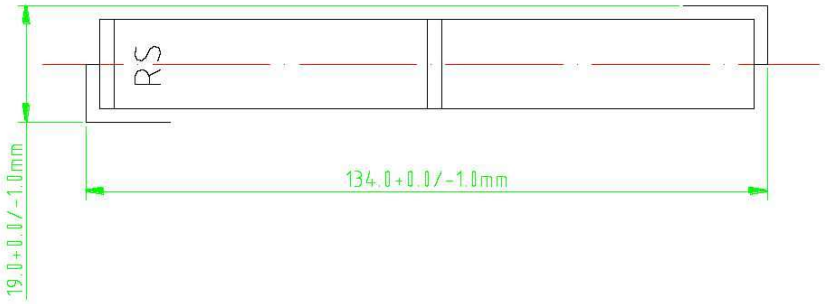
Product Description

The RS PRO Rechargeable Nickel Battery has a long service life, up to 1000 charge/discharge cycles. This product provides a reliable and safe power source with a wide range of temperature reliability, low discharge rate and great overcharge.

General Specifications

Battery type	NIMH 18570 4000 mAh (2S1P)
Nominal voltage	2.4V
Nominal capacity	4000 mAh (at 0.2CmA)
Typical weight	Approximate 124.51g
Addition wire weight	Approximate 23.63g
Standard charge	0.1CmA x 16 hours
Rapid charge	0.2C for 6hrs.(approx.) (With -ΔV, Temp., Time charging control)
Trickle charge	0.03CmA
Maximum Discharge Current	1CmA
Discharge cut-off voltage	2.0V
Dimension:	Width: 23.76mm±1mm Length: 160mm±1mm Height:22.14±1mm Wire Length: Black wire UL1015 20AWG , 85mm Addition wire: Black wire UL1015 20AWG, 1100mm Red wire UL1015 20AWG, 1100mm
Temperature range for operation (Humidity: Maximum 65%)	Standard charge: 0°C~+45°C Discharge: -20°C~+70°C
Temperature range for storage: (Humidity: Maximum 65%)	Within 6 months: -20°C~+30°C Within 1 months: -20°C~+45°C Within 1 week: -20°C~+55°C

Pack Drawing



Approvals

Declarations	MFR Declaration of Conformity
Hazardous Area Certification	ATEX / IECEx
Standards Met	VDE

1. Electrical Characteristics4-1. Terminal Voltage

Open circuit voltage (O.C.V.) shall be 2.4 V (minimum) within two weeks at room temperature after full charge.

4-2. Capacity

The battery deliver 4000mAh capacity at 0.1CmA charge rate for 16 hrs, then 0.2CmA discharge rate to 2.0 V. And the capacity of the battery is over 3800mAh at 0.2CmA discharge. The actual capacity depends on the operating temperature and the cycling conditions.

4-3. Cycle-life

The battery pack is capable of 500 cycles under the following conditions:

Cycle number	Charge	Rest	Discharge
1	0.10CmA for 16 hrs	0.5hr	0.25CmA for 2 hrs 20 min
2~48	0.25CmA for 3 hrs 10 min	0.5hr	0.25CmA for 2 hrs 20 min
49	0.25CmA for 3 hrs 10 min	0.5hr	0.25CmA to 1.0V/cell
50	0.10CmA for 16 hrs	1.0hr	0.20CmA to 1.0V/cell

50 cycles test as per above table is repeated. The discharge time of the 100th, 200th, 300th, 400th, 500th should be more than 3 hours respectively. After 500 cycles, the capacity is still over 80% of rated capacity. The actual cycle life depends on the operating temperature and the cycling conditions.

4-4. Overcharge

(1) The battery is charged at 0.5 CmA for 3 hours. After charging, the battery shows no change in the cell appearance, no leakage, and no fire or explosion.

(2) The battery is charged at less than 0.03 CmA for a long term (over one month). After charging, the battery shows no change in the cell appearance, no leakage, and no fire or explosion.

4-5. Short Test

The battery is fully charged, then shorted by connecting the positive to the negative terminals. The battery discharging is cut off by the fuse. The battery has no leakage observed, no change in the battery appearance, and no fire or explosion.

4-6. Self Discharge

(1) After one-month storage of a fully charged battery at room temperature (25°C), the capacity of battery has 70% of rated capacity, 0.2 CmA discharge to 2.0 V.

(2) After one-week storage of a fully charged battery at 45°C, the capacity of battery has 70% of rated capacity, 0.2 CmA discharge to 2.0 V.

4-7. Welding strength of the nickel terminals

Welding strength of nickel terminals is tested in perpendicular direction. The welding strengths are over 1 kgf.

4-8. Vibration Test

Cells are tested as follows:

(1) Amplitude	: 3.6mm peak to peak
(2) Frequency	: 1000cpm
(3) Direction and time	: Arbitrary direction continuously for 1 hour.
(4) Performance	: The cell shall be normality in appearance and no leakage.

1.9 Shock Test

Cells are tested as follows:

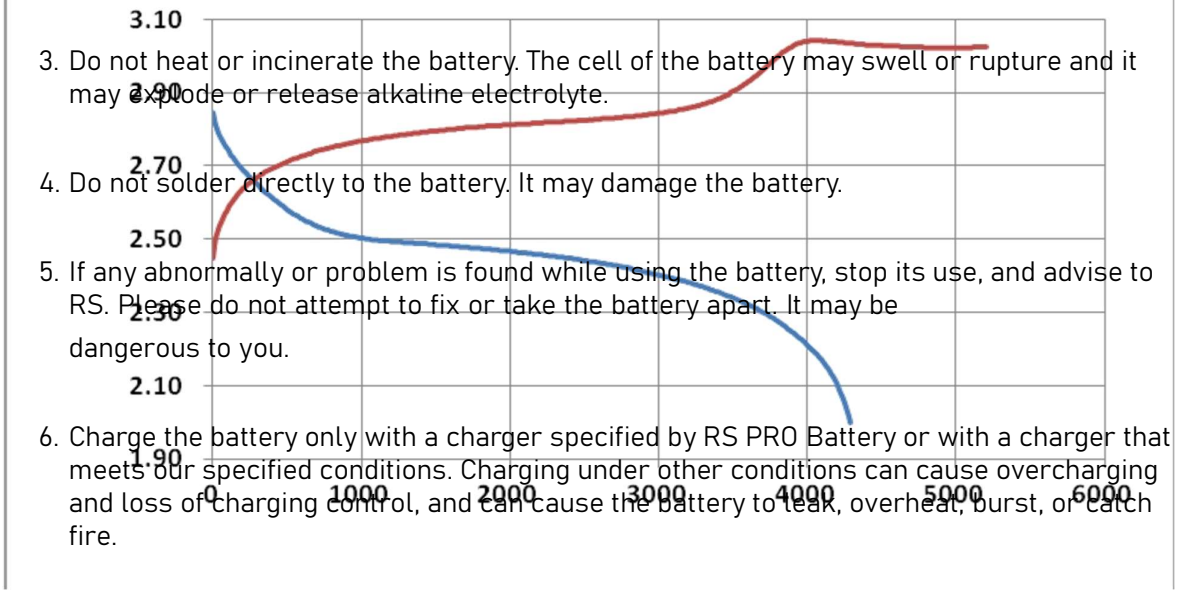
(1) Dropping Distance	: 0.45m (spontaneous dropping)
(2) Shock board	: Made of hard wood (Thickness is over 10mm)
(3) Dropping Time	: Arbitrary direction for 3 times.
(4) Performance	: The cell shall be normality in appearance and no leakage.

5. Safety Requirement for User

Please keep in mind the following points when operating, designing, or manufacturing your equipment.

1. Avoid short-circuiting of the battery . Do not connect the positive and the negative terminals with a wire or other metal items, as this will cause a large flow of current through the battery . It may damage the cells in the pack.

2. Do not attempt to take battery pack apart or subject to pressure or impact. The parts of the battery will be damaged, when the cells in the battery have ruptured, heat may be generated or fire may result. The alkaline electrolyte may harm the skin or eyes or damage clothing upon contact.



3. Do not heat or incinerate the battery. The cell of the battery may swell or rupture and it may explode or release alkaline electrolyte.
4. Do not solder directly to the battery. It may damage the battery.
5. If any abnormally or problem is found while using the battery, stop its use, and advise to RS. Please do not attempt to fix or take the battery apart. It may be dangerous to you.
6. Charge the battery only with a charger specified by RS PRO Battery or with a charger that meets our specified conditions. Charging under other conditions can cause overcharging and loss of charging control, and can cause the battery to leak, overheat, burst, or catch fire.
7. Do not use the battery in a sealed container

Typical HT18670*2 Charge/Discharge Curve @25□

Typical HT18670*2 Charge/Discharge Curve @45□