



## Battery Handling and Precautions

### Soldering

- Do not solder directly onto batteries. Always solder onto solder tag for connection.

### Charging and Discharging

- Always charge batteries before first time application.
- Parallel charging or connection is not recommended. Parallel charging will produce irregular charging currents. Please consult GP Batteries for more details.
- Never short-circuit or reverse polarity in application.
- Do not use different types of batteries in the same battery assembly.
- If the battery has been deep-discharged, a prolonged charging time is required to bring the battery back to full capacity.

### Storage

- Always store batteries in a cool, dry place.
- After long storage, e.g. over a year, it is desirable to cycle (charge/discharge) the battery 3 times to restore full capacity.
- Do not mix batteries with metal objects during storage or transportation to avoid accidental short-circuit.
- Do not store large quantities of batteries in a densely packed condition when they are in a charged or partially charged state.

### Battery Handling

- Do not incinerate or dismantle batteries. Cell components are corrosive and may be harmful to skin and eyes.
- Do not pull on battery lead wires or connector. Excessive force on the leads or connectors can damage the welding joints or other connections.

### Easy Battery Removal

- Some countries have legislation requiring easy removal of batteries from the devices. When designing a product, consideration should be given to the use of a socket connector and an easy-to-open battery compartment.

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# GP Batteries

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# GP Batteries

## NiMH Rechargeable Batteries





# Rechargeable Batteries

## Achieving World Class Standard

Committed to continued efforts in R&D and product innovation, GP Batteries is proud to present a whole new range of high capacity NiMH batteries. This has been achieved through revolutionary designs in construction and new chemical formulation that increase the utilisation efficiency of the electrodes. The performance has also been perfected by the cell's improved mechanical construction and the use of unique thinner and stronger separators.



## Major Features

- High capacity**  
 GP NiMH batteries have high energy density and deliver up to double the capacity of NiCd batteries of similar size. They are most suitable for sophisticated high drain applications e.g. video cameras, cellular phones, notebook computers, etc.
- Superior high rate discharge characteristics**  
 Up to 3C high rate discharge is possible.
- Broad operating temperature range**  
 -20°C to 60°C.
- Quick charging capability**  
 Rapid charge in about one hour with GP specified charging condition.
- Long service life**  
 Under different usage conditions, GP NiMH batteries can deliver 300 -1000 charge/discharge cycles.
- Excellent overcharge endurance**  
 GP NiMH batteries can be continuously charged at 0.1C rate for one year without leakage or deformation.
- Built-in safety protection mechanism against misuse**  
 A resealable safety vent is built in to relieve internal pressure in case of misuse. Polarity reversal and overdischarge protection mechanisms are also incorporated in the cell.
- Absolutely no memory effect**  
 Discharge is not required before charging.
- Environmentally friendlier**  
 No cadmium, lead or mercury are added. Most suitable for markets with high environmental concerns.
- Comprehensive range**  
 GP NiMH batteries comprise of a comprehensive range of different cylindrical and prismatic sizes catering for a wide range of applications.
- High reliability**  
 GP NiMH batteries are produced with the best available material and advanced technology, allowing them to perform with outstanding reliability.
- ISO 9001 accreditation**  
 Sylva Industries Ltd., the manufacturing arm of GP Batteries received ISO 9001 accreditation in the design and manufacture of secondary and primary batteries in 1996.



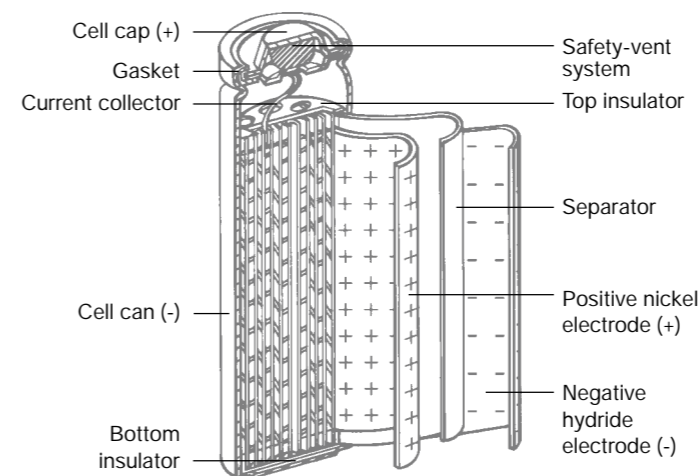
## Major Applications

- Communications**  
 Cellular phones, cordless phones, transceivers.
- Information devices**  
 Notebook computers, personal digital assistants (PDAs), portable facsimile machines.
- Audio and video devices**  
 Digital video cameras, LCD TVs, portable DVD,VCD, MD and CD players.
- Emergency lighting**
- Remote controls & security systems**
- Other applications**  
 Remote control toys, shavers, massagers, electric tooth brushes, handheld vacuum cleaners, power tools, handheld terminals, electric bicycles, etc.

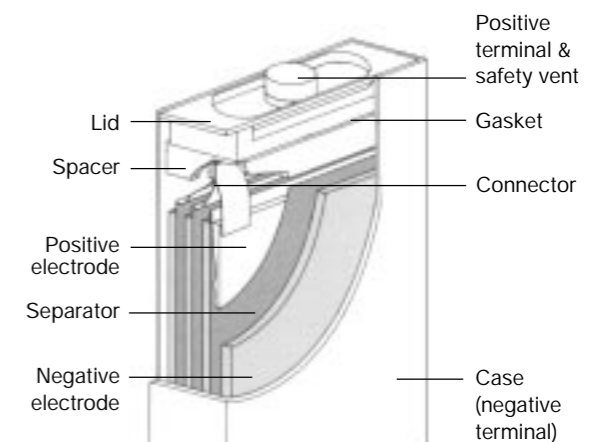


## Cell Construction

### Cylindrical



### Prismatic





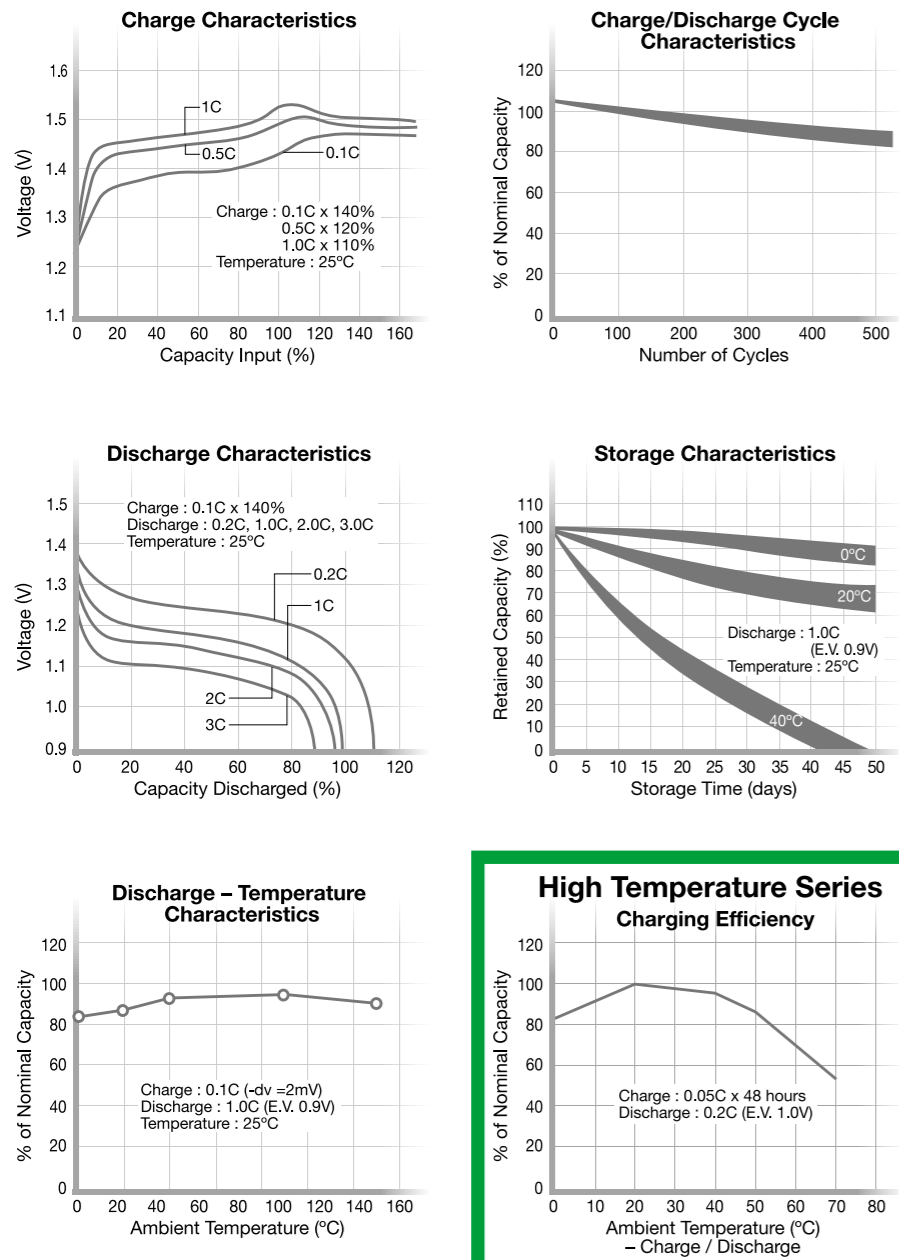




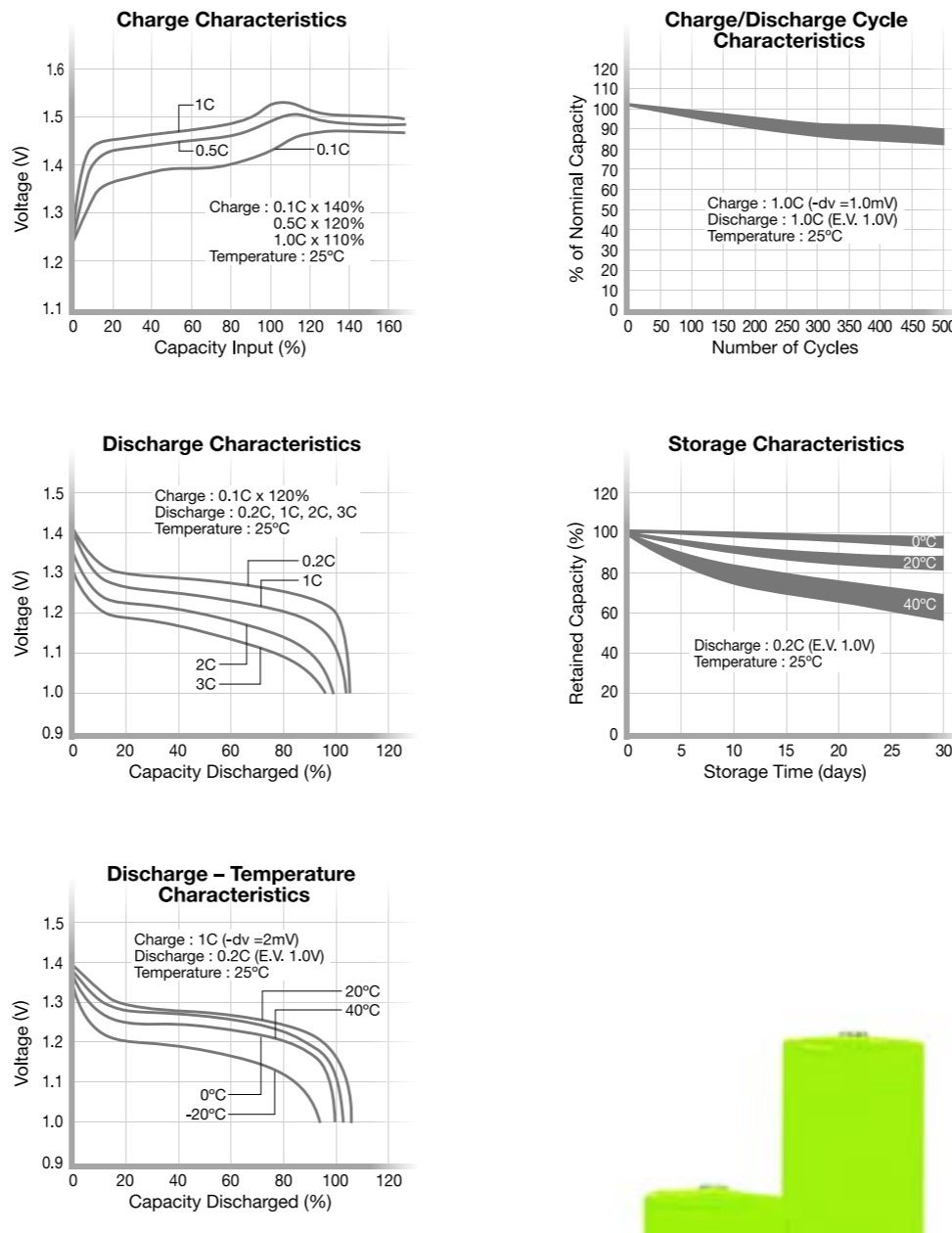
# NiMH Rechargeable Batteries

## Performance Characteristics

### Cylindrical Cells



### Prismatic Cells



### 9V Batteries

