



# NP4-6AG

## NP Series Batteries Specification

Battery Model	Nominal Voltage	Rated Capacity	Dimension				Approx. Weight	Terminal Type
	(V)	20 Hour 1.75V /cell	Length	Width	Height	Total Height	(KG)	
		Ah	mm	mm	mm	mm		
NP4-6AG	6	4	70	48	102	108	0.8	E

## Battery Features

**Sealed Construction and Leakproof** GUIDING batteries have special construction and uses advanced sealing techniques to ensure leakproof during normal operations.

**Maintenance-free Operation** Refilling is not necessary to all GUIDING sealed lead acid battery.

### Gas Generation

During float usage, over 99% of gases generated will be recombined inside the battery.

### Operating in any Position

With the advanced sealed and leakproof construction, GUIDING batteries are able to operate in any position.

### Low Self-Discharge

With our innovative technology, self-discharge rate of GUIDING batteries can reach lower than 3% of rated capacity per month under normal operating temperature, enable GUIDING batteries to be stored for a long period of time.

### Safety Valve Regulated System

Equipped with a safety valve regulated system, GUIDING batteries will release the excessive gas and will automatically be resealed to avoid over accumulation of gas inside the battery.

### Long Service Life

GUIDING batteries are designed to provide longer service to user. More than 1000 charge/discharge cycles can be expected, depending on the average depth of discharge. In float applications, NP Series batteries can service for 3 to 5 years and GM Series can service for 10 to 15 years.

### Deep Discharge Recovery

Improved design enables the battery to have a better recovery after repeated deep discharges.

### No Memory Effect

There is no memory effect for a sealed lead acid battery after repetitious usage or recharge.

### Wide Operating Temperature Range

GUIDING batteries can be operated over a wide range of ambient temperatures.

## Applications

GUIDING batteries are designed to be used at a wide range of products. They can be classified as either Cycle or Standby applications. Here are some examples of those common applications.

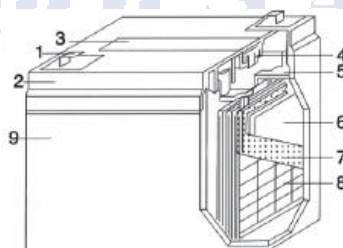
### Cycle Use

Rechargeable Lanterns  
Power tools, lawn mowers, vacuum cleaners  
Portable Audio & Video equipment  
Portable computing equipment  
Electric driven wheelchairs or bicycle  
Toys and consumer electronics  
Solar power devices  
Automobile

### Standby use

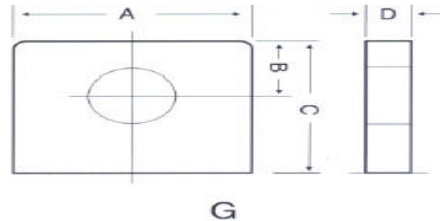
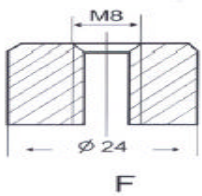
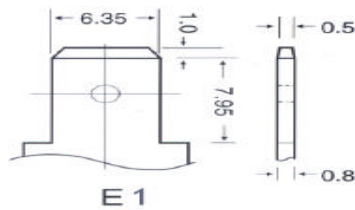
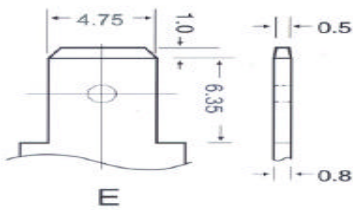
Uninterruptible power supply  
Emergency lighting system  
Security system and fire alarm  
Telecommunication systems  
Communication equipments  
Medical equipment

## Battery Construction



1. Terminal
2. Cover
3. Valve Cover
4. Safety Valve
5. Inter-cell Connector
6. Negative Electrode
7. AGM Separator
8. Positive Electrode
9. ABS Container

## TERMINAL DATA



Terminal Data (mm)

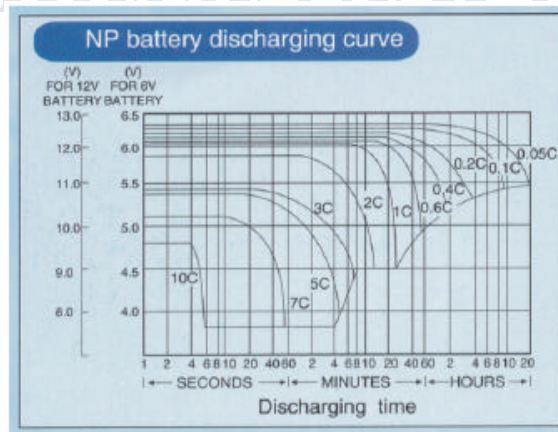
Model	A	B	C	D
NP17- 12	12	5	14	3
NP24- 12	13	4.5	14	5
NP38- 12	16	7.5	17	7
NP65- 12	22.5	7.5	17.5	7.5
NP100- 12	25	11.5	25	7.5
NP200- 12	25	11.5	25	8.5
GM	25	12.5	37	10

## Discharge Characteristic

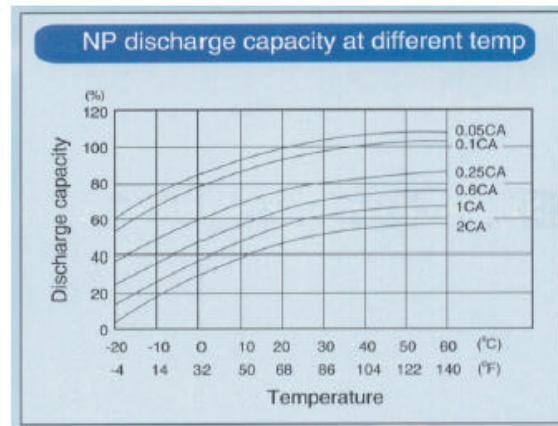
On different discharge currents, batteries will have different discharge capacities. The following graphs will illustrate the relationship between voltage and discharge time. C stands for the nominal capacity at a 20-hour discharge rate on 25°C temperature. All batteries are suggested to be cut off when the voltage drops to cut off line to prevent an over discharge.

## Deep discharge

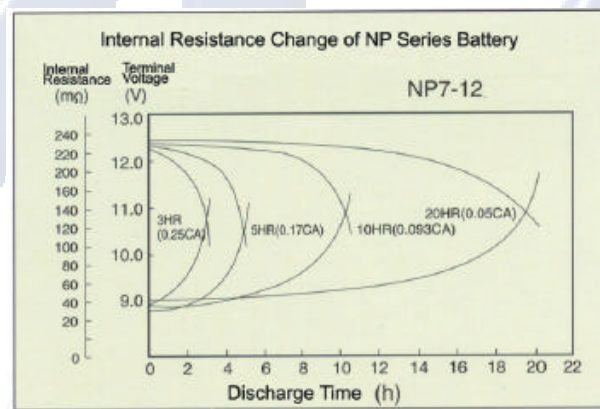
The batteries will be damaged or reduce their service life and capacity when over discharge. However, under GUIDING innovative technologies, our batteries have a deep discharge recovery. That means GUIDING batteries can recover to a full capacity even under a deep discharge.



## Temperature Effect on Discharge Capacity

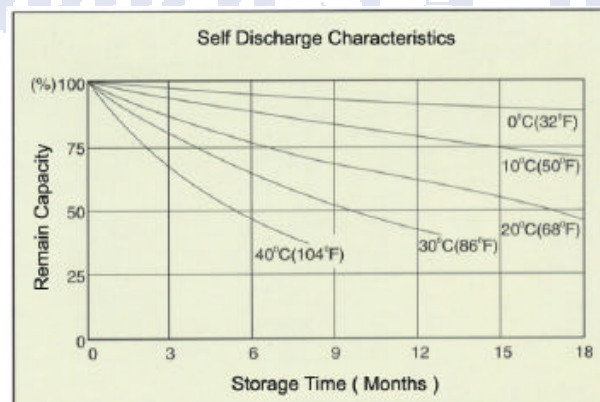


## Internal Resistance



Internal resistance of a battery will be increased during discharge and will be increased during charge. The internal resistance are minimized in a fully charged status. The following graph illustrate the change of internal resistance versus discharge time.

## Self Discharge



Under the innovative technology of GUIDING, the self discharge rate of our batteries has been minimized to approximately 3% of rated capacity per month at normal operating temperature. This enables our batteries to be stored for a longer period of time without use. The above graph illustrates the remained capacity at storage time.

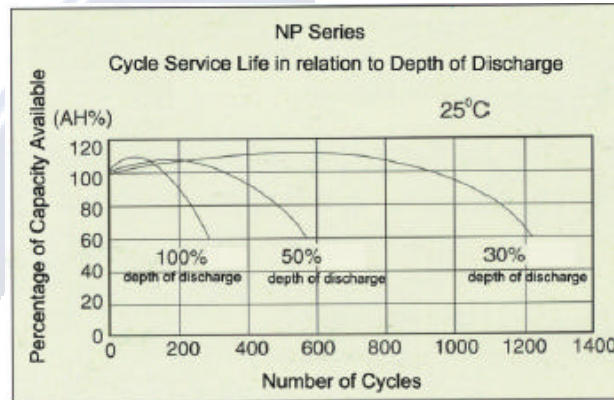
## Service Life

Lead sulphate will form on the negative plate of the battery when it is unused for a long period of time. Such phenomenon is called Sulphation. The lead sulphate will act as an insulator thus affects the charge acceptance. We recommend to charge the battery if you are going to store it for an extended period of time.

Temperature	Shelf Life
0 C (32 F) to 20 C (68 F)	12 months
21 C (70 F) to 30 C (86 F)	9 months
31 C (88 F) to 40 C (104 F)	5 months
41 C (108 F) to 50 C (122 F)	2.5 months

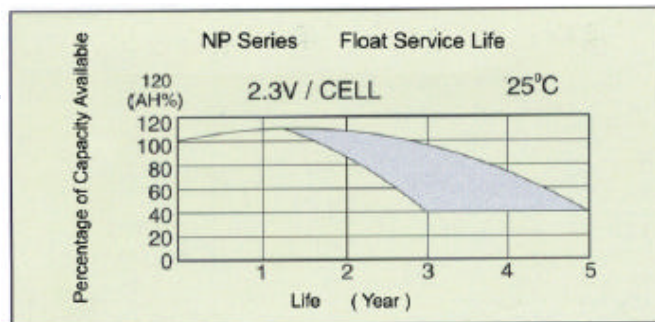
## Cycle Service Life

The main factor affecting the cycle life of a battery is the depth of discharge. A shorter battery life will be expected on a deeper discharge rate. Users are recommended to choose a larger capacity battery if a longer cycle life is required.



## Float Service Life

Under a normal service condition, NP batteries can be expected to have a service life from 3 to 5 years. The graph is based on an operating temperature 25°C and float charge voltage is 2.3V per cell.



## Charging Characteristic

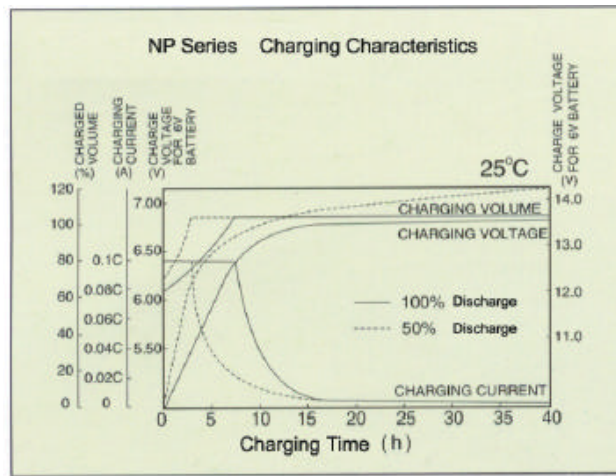
There are four common charging methods for lead acid batteries. They are :Constant Voltage Charging Constant Current Charging Taper Current Charging Two Step Constant Charging However, we should choose the best method in charging the battery. A proper charging method is crucial in keeping the batteries at their best performance and maximizing the service life. Constant Voltage Charging is our highly recommended method for charging VRLA batteries.

### NP Series

For Standby use : 2.25 to 2.3 volt per cell at 25 C

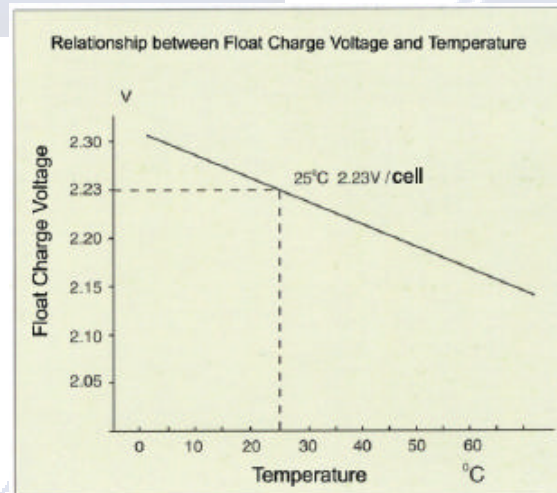
For Cycle use : 2.35 to 2.4 volt per cell at 25 C



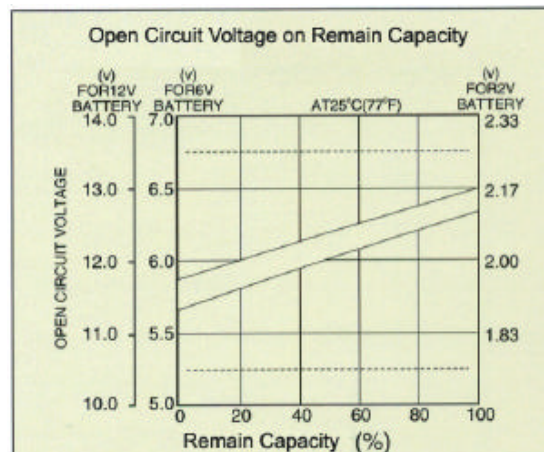


## Temperature Compensation

At 25°C, charging voltage of NP Series batteries is 2.3volt/cell for float service. And GM Series is 2.23volt/cell. When the temperature is above or below 25°C, the charging voltage should be adjusted and the recommended compensation factor is - 3mV/°C/cell.



## Open Circuit Voltage and Remain Capacity



The above graph shows the remain capacity of NP and GM Series batteries by measuring the open circuit voltage.