

**CYCLIC APPLICATION**

# YUASA NPC SERIES MAINTENANCE-FREE LEAD-ACID BATTERIES



Innovative valve-regulated cyclic specialty  
..... now available with doubled longer life.

YUASA BATTERY CO., LTD.  
JAPAN

# YUASA NPC SERIES

The maintenance-free and valve regulated constructions combine with heavy-duty plates and unique separator systems to make NPC serviceable twice as long as conventional counterparts.

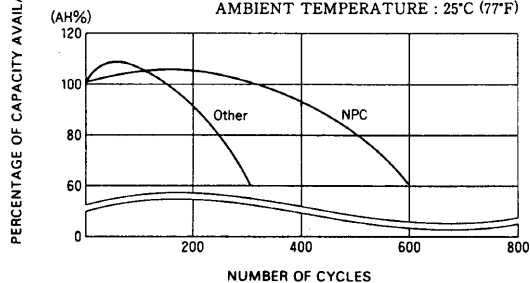
## FEATURES

### 1. Doubled cycle life

NPC operates 500 charge/discharge cycles or twice as many cycles as conventional cycle use batteries at 75% D.O.D. (depth of discharge).

#### ■ CYCLE SERVICE LIFE IN RELATION TO DEPTH OF DISCHARGE AT 75% DOD

**TESTING CONDITIONS :**  
Capacity test 0.17CA (FV 10.2V)  
Life test 0.25CA, 3 hours  
CHARGING : 14.6V, 9 HOURS  
MAX. CHARGING CURRENT : 0.25CA  
AMBIENT TEMPERATURE : 25°C (77°F)



### 2. Valve-regulated and maintenance-free

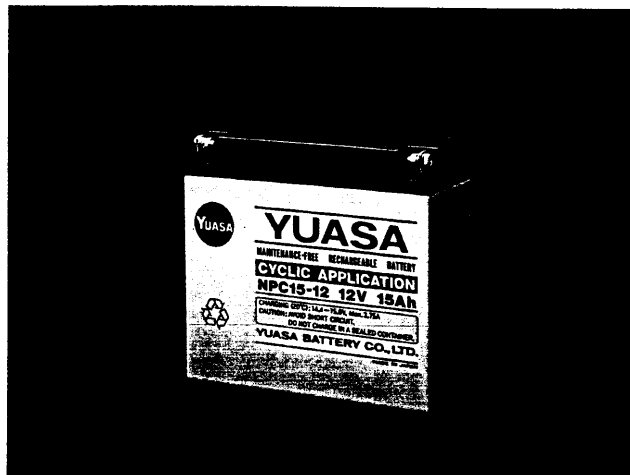
Battery electrolyte retained solidly in the separator and the innovative gas recombinant system allow minimum gas emittance freeing from maintenance.

### 3. Durability for deep discharge use

Yuasa's state-of-the-art plate barrier prevention and the unique separator systems help endure deep discharge use and thus considerably prolonging battery's service life.

### 4. Minimal self-discharge

Cyclic use batteries tend to be left discharged after usage causing plate corrosion leading to shortened life. Self discharge rate of NPC is as small as only 0.1% a day at 20°C as shown in the diagram and thus extends storage period remarkably long.



### ■ Operating temperature range

Charge: -15~50°C (5~122°F)  
Discharge: -15~50°C (5~122°F)  
Storage: -20~50°C (-4~122°F)

### ■ Recommended charging method at 25°C (77°F)

Current: Max. 0.25CA  
Voltage: 14.6~14.8V

### ■ Standard terminal: Bolt/nut

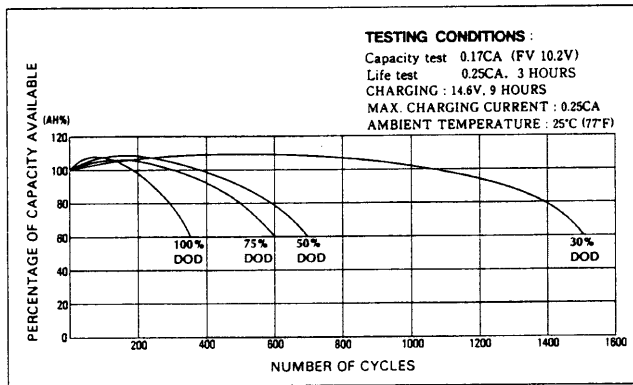
Housing material: ABS resin

## APPLICATIONS

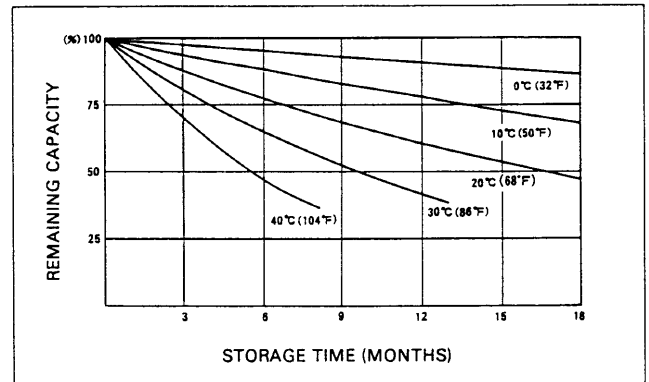
- Wheelchairs
- Golf trolley
- Golf carts
- OA
- AV
- Lawn mowers
- Lights
- Toy cars
- Sprayers
- Photovoltaics
- Movable bed
- Models
- Robots
- Communications
- Camping accessories
- Fishing reel
- Fish finders
- Electric tools
- Pumps
- Measuring instruments
- AGV
- Magnetic lifts

## PERFORMANCE

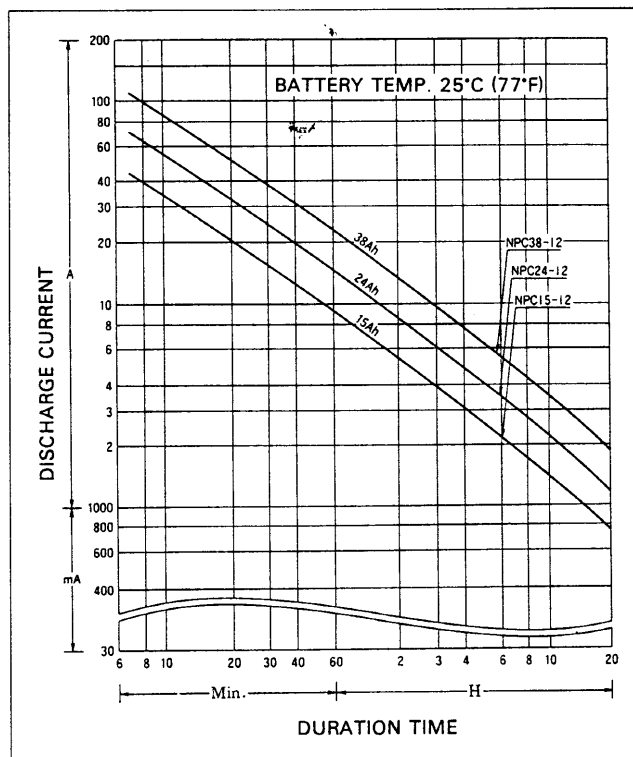
### ■ CYCLE SERVICE LIFE IN RELATION TO DEPTH OF DISCHARGE



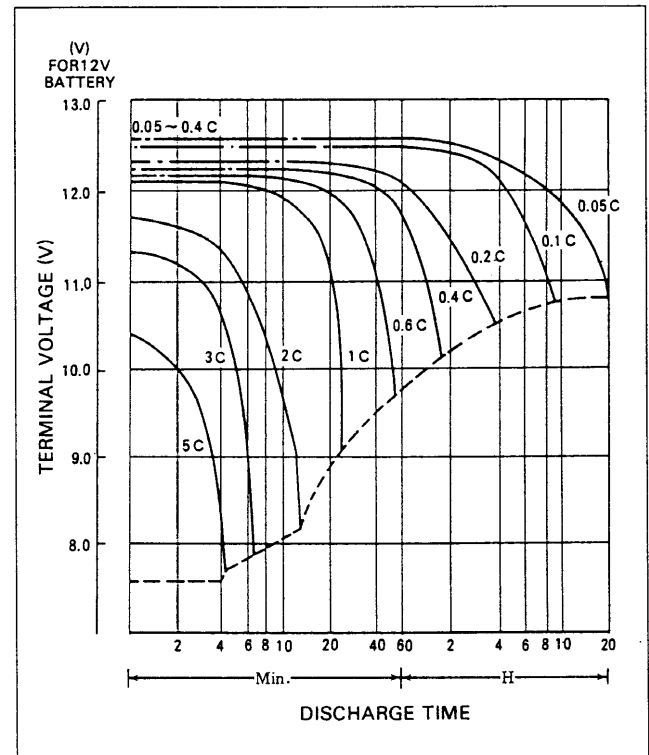
### ■ SELF-DISCHARGE CHARACTERISTICS



### ■ DISCHARGE CURRENT VS. DURATION TIME



### ■ DISCHARGE CHARACTERISTICS AT VARIOUS CURRENTS (25°C (77°F))



## SPECIFICATIONS

Model	V	Capacity at 20HR (Ah)	Dimensions mm (inch)			Approx. wt. Kgs. (pounds)	Terminal
			L	W	H		
NPC15-12	12	15	181 (7.13)	76 (2.99)	167 (6.57)	6.3 (13.89)	Bolt/nut
NPC24-12	12	24	175 (6.89)	166 (6.54)	125 (4.92)	9.0 (19.84)	Bolt/nut
NPC38-12	12	38	197 (7.76)	165 (6.50)	170 (6.69)	14.2 (31.31)	Bolt/nut

## IMPORTANT HINTS TO PROLONG BATTERY LIFE

### RECOMMENDED CHARGING INSTRUCTIONS

1. Constant voltage charging is recommended at 14.6 to 14.8 volts at 25°C (77°F).
2. Initial charging current: Max. 0.25CA.
3. Always recharge battery after use.
4. Optimum charged volume is 110% of discharged volume.  
Optimum charging time: 9 hours  
Maximum charging time: 20 hours
5. When using a charger other than the constant voltage type, be alert with charging hours, charging voltage and current.
6. Try to apply the least internal resistance cable, considering line drop voltage.

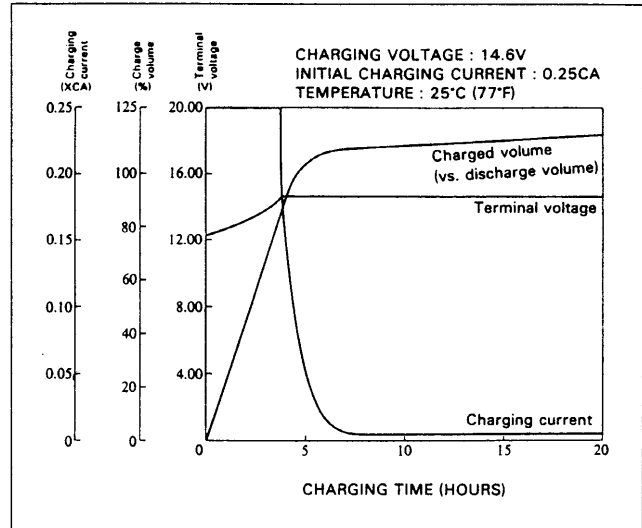
### DISCHARGING

1. Never leave battery in a discharged condition, or at less than 11.8V OCV.  
If left discharged below OCV 11.8V, battery may not restore full charge and permanently lose service life.
2. Optimum discharge current is less than ICA.  
The higher the current, the less the capacity.
3. Permissible discharge current is 3C.  
If 3C or more current is applied, consult us for our operating recommendation.
4. If battery is to be stored for a long time, apply supplementary charge according to the table, right.

### OTHERS

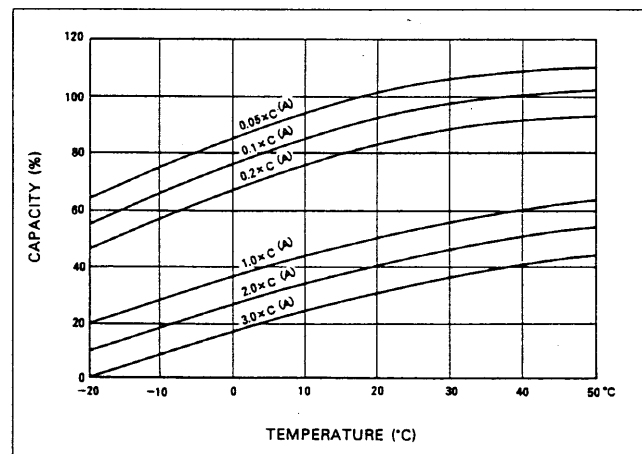
1. Keep battery in a dry and cool place within the temperatures of -20°C to 50°C (-4 to 122°F)
2. Do not locate near fire. Avoid short circuit.

### CONSTANT CURRENT, CONSTANT VOLTAGE CHARGING CHARACTERISTICS



If battery is overdischarged, initial charging current may be minimal, but will recover normal value in an hour or so.

### AMBIENT TEMPERATURE VS. CAPACITY



### INTERVAL OF SUPPLEMENTAL CHARGE AT VARIOUS STORAGE TEMPERATURES

Storage Temp.	Charging interval
20°C (68°F) or less	Once in 9 months
20~30°C (68~86°F)	Once in 6 months
30~40°C (86~104°F)	Once in 3 months

Try to avoid usage at 40°C or more to maximize battery life.

● Specifications subject to change without prior notice.



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