

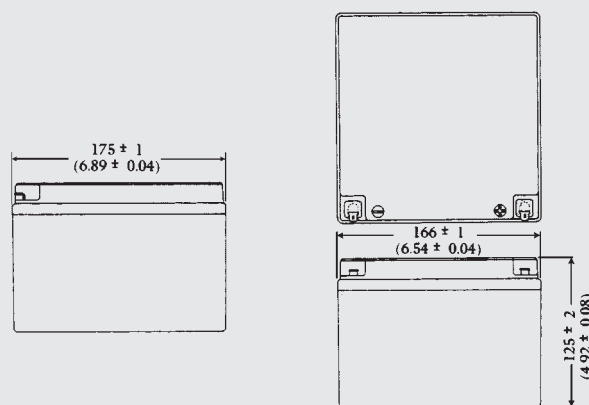
# Independence™ Sealed Rechargeable Lead-Acid Battery



**NP24-12**  
**NP24-12FR**  
**12V, 24.0Ah**

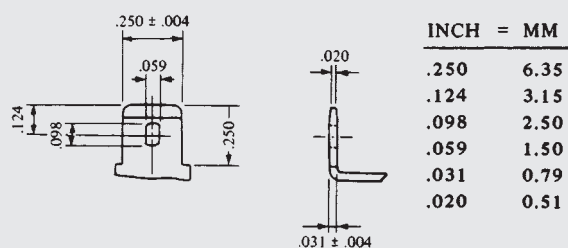


## Dimensions



DIMENSIONS: MM (INCHES)

## Terminal



DIMENSIONS: INCHES

## Specifications

Nominal Voltage ..... 12V

Nominal Capacity

20 hr. rate of 1.20 A to 10.50 V 24.0 Ah

10 hr. rate of 2.23 A to 10.50 V 22.3 Ah

5 hr. rate of 4.08 A to 10.20 V 20.4 Ah

1 hr. rate of 14.40 A to 9.60 V 14.4 Ah

Weight (approx.) ..... 19 pounds

Energy density (20 hr.rate)

..... 1.30 WH/cubic inch

(79.7 WH/litre)

Specific energy (20 hr. rate)

..... 15.2 WH/pound

(33.4 WH/kg)

Internal resistance of charged battery

..... 10 milliohms (approx.)

Maximum discharge current with standard

terminals ..... 150 amperes

Maximum short-duration discharge current

..... 500 amperes

Operating temperature range

Charge ..... 5°F to 122°F

(-15°C to 50°C)

Discharge ..... -4°F to 140°F

(-20°C to 60°C)

Charge retention (shelf life) at 68°F (20°C)

1 month ..... 97%

3 months ..... 91%

6 months ..... 85%

Life expectancy

Standby use ..... 3 to 5 years

Cycle use (approx.)

100% depth of discharge ... 250 cycles

50% depth of discharge ... 550 cycles

30% depth of discharge .. 1200 cycles

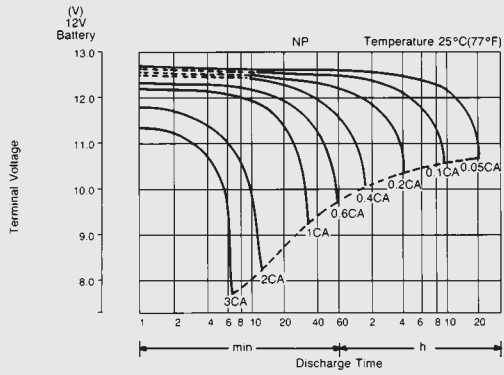
Sealed construction

Can be operated, charged or stored in any position without leakage.

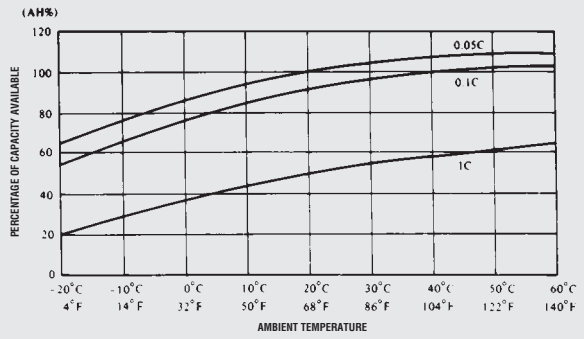
Standard terminal . . Quick Disconnect .250

Housing material ..... ABS Resin or ABS Flame Retardant (UL94-V0)

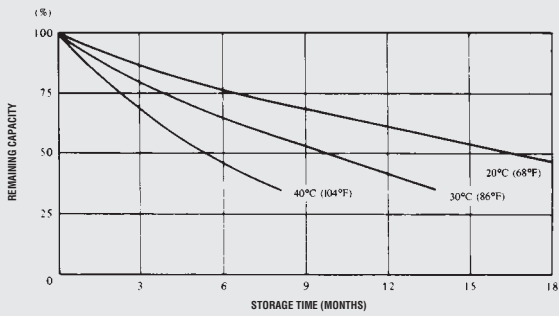
## DISCHARGE CHARACTERISTIC CURVES



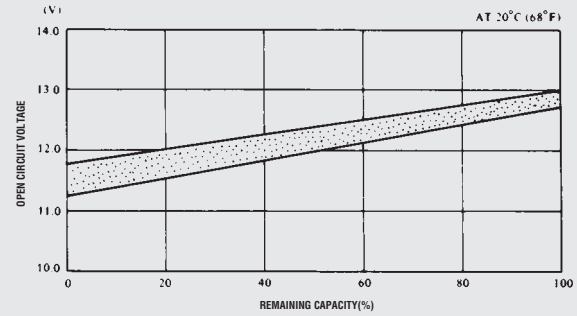
## TEMPERATURE EFFECTS IN RELATION TO BATTERY CAPACITY



## SELF DISCHARGE CHARACTERISTICS

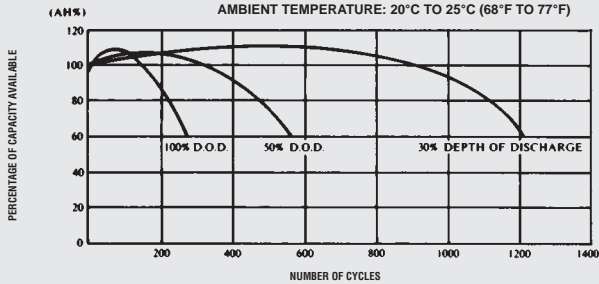


## OPEN CIRCUIT VOLTAGE VS REMAINING CAPACITY



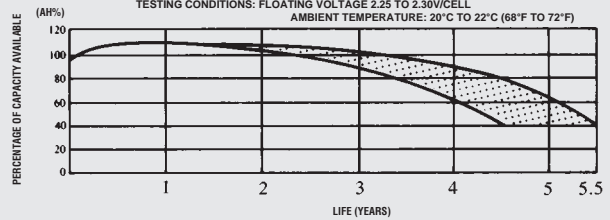
## CYCLE SERVICE LIFE IN RELATION TO DEPTH OF DISCHARGE

TESTING CONDITIONS: DISCHARGE CURRENT: 0.17C Amp. (F.V. 1.7V/CELL)  
CHARGING CURRENT: 0.09C Amp.  
CHARGING VOLUME: 125% OF DISCHARGED CAPACITY  
AMBIENT TEMPERATURE: 20°C TO 25°C (68°F TO 77°F)



## FLOAT SERVICE LIFE

TESTING CONDITIONS: FLOATING VOLTAGE 2.25 TO 2.30V/CELL  
AMBIENT TEMPERATURE: 20°C TO 22°C (68°F TO 72°F)



When the battery will be used by the current in excess of 3C, consult with Yuasa, Inc. prior to use.

**CHARGING METHODS (At 20°C)** **Cycle use:** Maximum charging current 6.0A  
Charging voltage 14.4 to 15.0V  
**Standby use:** Float charging voltage 13.50 to 13.80V

**CAUTION**

- Avoid short circuit
- Do not charge in a sealed container.

Distributed by:



### Sales Offices

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FAX 201-641-8720

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610-208-1991 • 800-528-3627  
FAX 610-372-8613

Visit us on the web at:

[www.yuasainc.com](http://www.yuasainc.com)



When ordering new batteries, also remember to properly dispose your old lead batteries. Most federal and state regulations require lead-acid batteries be recycled. Yuasa, Inc.'s nationwide service organization can arrange pickup, transportation to and recycling at any one of our company affiliated smelters. Call 1-800-972-7372 for more information.