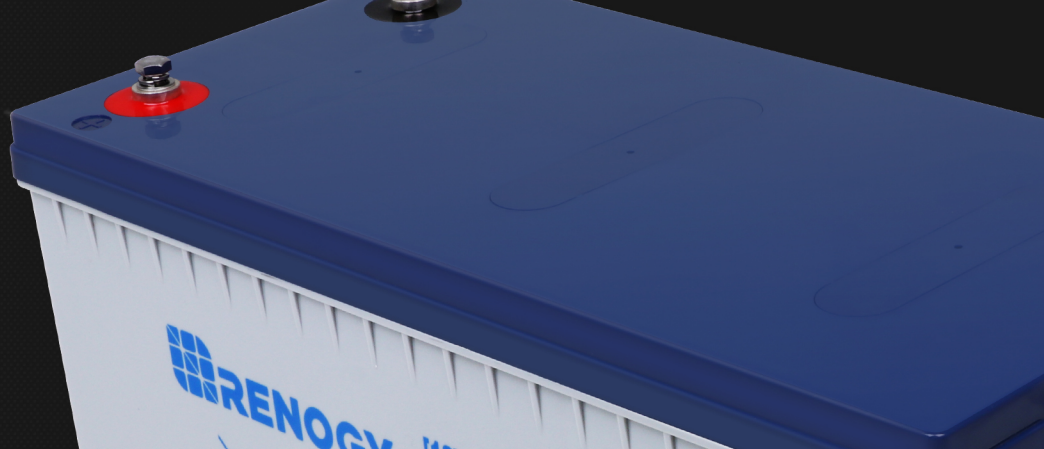




# DEEP CYCLE GEL BATTERY 12 VOLT 200AH



## RENOGY DEEP CYCLE GEL BATTERY 12 VOLT 200AH

The Renogy 12V Deep Cycle Hybrid GEL Battery is ideal for both standby and cyclic applications in extreme environments. Maintenance-free and leak-proof, it can reliably supply emergency power to telecommunication systems, security systems, and emergency lighting systems, helping prevent any damage that may be caused by a sudden loss of primary electricity. It is also suitable for RVs, boats, medical equipment, and lawnmowers, where repeated charges and discharges are highly required, given its long service life and outstanding cycle capacity. Moreover, with its high power-to-weight ratio, it can provide maximum storage for any solar or wind system. With the finest materials, state-of-the-art production techniques, and the strictest quality control procedures, Renogy Hybrid GEL batteries aim to provide the most reliable, convenient, and economic rechargeable battery solution.

### KEY FEATURES

#### Maintenance Free

Manufactured with gel suspended electrolyte and advanced valve regulated technology, Renogy Deep Cycle Hybrid GEL Batteries save you from acid leakage and frequent maintenance.

#### Extended Service Life

Corrosion-resistant grids enable a design life of up to 12 years in standby applications and more than 750 charge/discharge cycles at 50% DOD in cyclic applications.

#### Long Shelf Life

Made of high purity materials, Renogy Deep Cycle Hybrid GEL Batteries reduce the monthly self-discharge rate below 3% at 77°F (25°C), which is five times lower than their flooded counterparts.

#### Deep Discharge Recovery

Proprietary plate composition and patented gel electrolyte ensures excellent recovery capability after excessive deep discharge.



RENOGY.COM



2775 EAST PHILADELPHIA ST. ONTARIO, CA 91761

## ELECTRIC CHARACTERISTICS

|                                  |                                    |
|----------------------------------|------------------------------------|
| Nominal Voltage                  | 12V                                |
| Number of Cells                  | 6                                  |
| Rated Capacity (77°F/25°C)       | 200Ah (20 Hour Rate to 10.8V)      |
| Reference Capacity (77°F/25°C)   | C3: 148.5Ah                        |
|                                  | C5: 167.0Ah                        |
|                                  | C10: 190.0Ah                       |
|                                  | C20: 200Ah                         |
| Internal Resistance              | 4.2 mΩ                             |
| Self-discharge Rate (77°F/25°C)  | <3% / month                        |
| Float Charge Voltage (77°F/25°C) | 13.6V~13.8V                        |
|                                  | Temperature Compensation: -18mV/°C |
| Cycle Use Voltage (77°F/25°C)    | 14.2V~14.4V                        |
|                                  | Temperature Compensation: -24mV/°C |
| Equalization Voltage (77°F/25°C) | 14.2V                              |
| Max Charge Current               | 60A                                |
| Max Discharge Current            | 2000A (5 Seconds)                  |

## TEMPERATURE PARAMETERS

|                              |                                    |
|------------------------------|------------------------------------|
| Normal Operating Temperature | 77°F±9°F (25°C±5°C)                |
| Operating Temperature Range  | Discharge: -4°F~140°F (-20°C~60°C) |
|                              | Charge: 32°F~122°F (0°C~50°C)      |
| Storage Temperature Range    | -4°F~140°F (-20°C~60°C)            |

## MECHANICAL PROPERTIES

|                             |                                            |
|-----------------------------|--------------------------------------------|
| Terminal Bolt Size          | M8 x 1.25 x 16 mm                          |
| Recommended Terminal Torque | 88.5 inch·lb~106.2 inch·lb / 10 N·m~12 N·m |
| Container Material          | ABS                                        |
| Weight                      | 127.9 lb. / 58 kg                          |
| Dimension (L x W x H)       | 20.6 x 9.4 x 8.8 inch / 522 x 240 x 224 mm |

## CONSTANT CURRENT DISCHARGE CHARACTERISTICS (77°F/25°C) UNIT: A

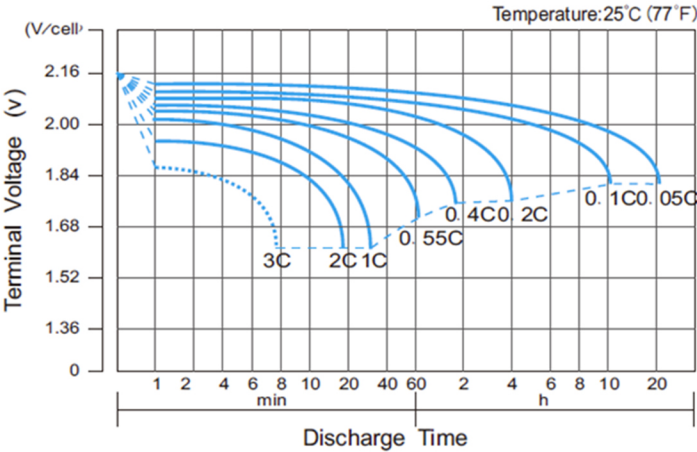
| F.V/Time | 1hr   | 2hr  | 3hr  | 4hr  | 5hr  | 8hr  | 10hr | 20hr | 48hr | 50hr | 72hr | 100hr | 120hr |
|----------|-------|------|------|------|------|------|------|------|------|------|------|-------|-------|
| 1.60V    | 118.6 | 71.0 | 52.9 | 41.8 | 35.3 | 24.1 | 20.4 | 10.4 | 4.72 | 4.48 | 3.23 | 2.38  | 2.02  |
| 1.65V    | 116.3 | 69.8 | 52.1 | 41.3 | 34.8 | 23.8 | 20.2 | 10.3 | 4.67 | 4.44 | 3.20 | 2.35  | 2.00  |
| 1.70V    | 113.3 | 68.2 | 51.0 | 40.5 | 34.2 | 23.4 | 19.9 | 10.2 | 4.61 | 4.38 | 3.15 | 2.32  | 1.97  |
| 1.75V    | 109.3 | 66.0 | 49.5 | 39.5 | 33.4 | 22.9 | 19.5 | 10.0 | 4.52 | 4.29 | 3.09 | 2.28  | 1.94  |
| 1.80V    | 103.7 | 63.0 | 47.5 | 38.0 | 32.3 | 22.3 | 19.0 | 9.75 | 4.40 | 4.18 | 3.01 | 2.21  | 1.88  |
| 1.85V    | 95.8  | 58.6 | 44.6 | 35.9 | 30.7 | 21.3 | 18.2 | 9.40 | 4.22 | 4.01 | 2.89 | 2.12  | 1.81  |



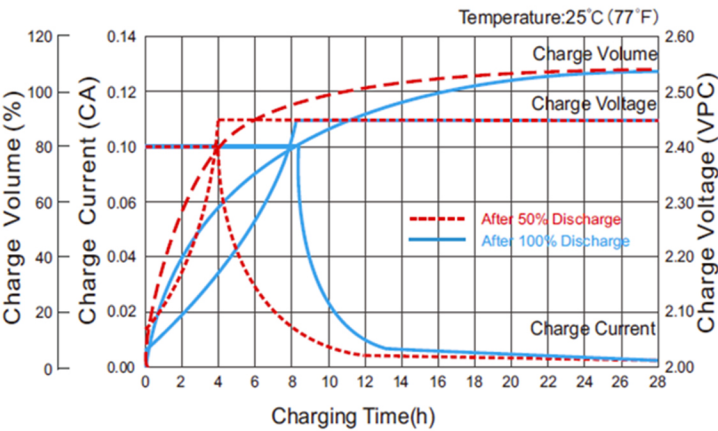
CONSTANT POWER DISCHARGE CHARACTERISTICS (77°F/25°C) UNIT: WPC

| F.V/Time | 1hr   | 2hr   | 3hr   | 4hr  | 5hr  | 8hr  | 10hr | 20hr | 48hr | 50hr | 72hr | 100hr | 120hr |
|----------|-------|-------|-------|------|------|------|------|------|------|------|------|-------|-------|
| 1.60V    | 233.3 | 141.6 | 106.4 | 84.6 | 71.6 | 49.5 | 42.2 | 21.5 | 9.76 | 9.27 | 6.68 | 4.92  | 4.18  |
| 1.65V    | 231.3 | 140.2 | 105.4 | 83.8 | 71.0 | 49.1 | 41.9 | 21.4 | 9.68 | 9.20 | 6.63 | 4.88  | 4.15  |
| 1.70V    | 226.2 | 137.4 | 103.5 | 82.5 | 70.0 | 48.4 | 41.3 | 21.1 | 9.56 | 9.08 | 6.54 | 4.81  | 4.10  |
| 1.75V    | 219.2 | 133.6 | 100.9 | 80.6 | 68.6 | 47.5 | 40.6 | 20.8 | 9.39 | 8.92 | 6.43 | 4.73  | 4.02  |
| 1.80V    | 209.1 | 128.1 | 97.1  | 77.9 | 66.5 | 46.2 | 39.5 | 20.3 | 9.14 | 8.69 | 6.26 | 4.61  | 3.92  |
| 1.85V    | 194.4 | 120.0 | 91.5  | 73.8 | 63.4 | 44.2 | 38.0 | 19.6 | 8.78 | 8.35 | 6.01 | 4.43  | 3.77  |

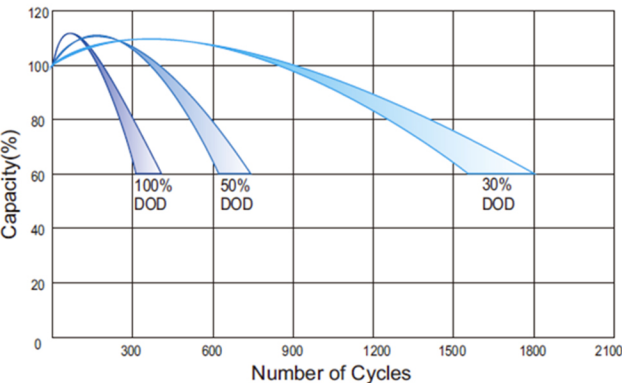
Discharge Characteristics Curve



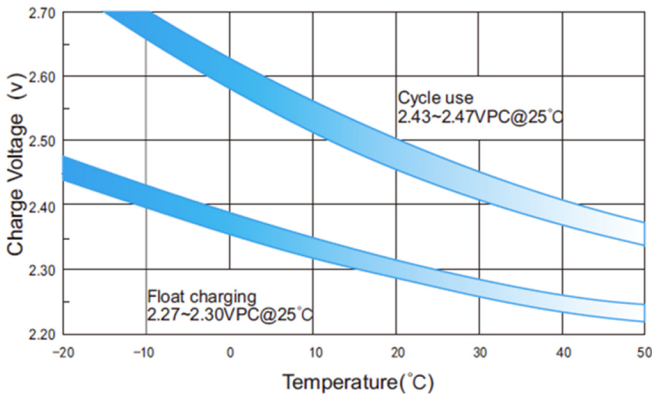
Charge Characteristics Curve for Cycle Use



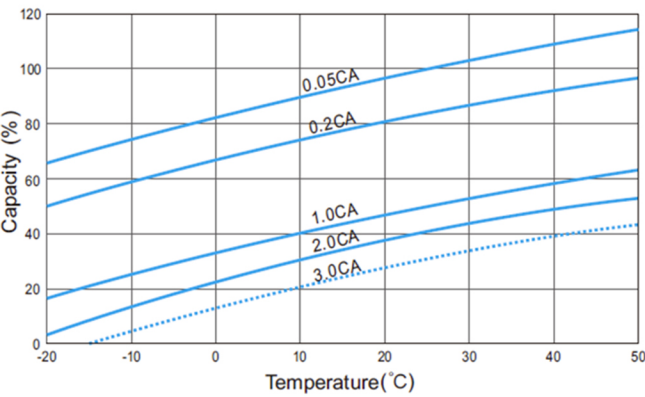
Relationship between Cycle Life and DOD



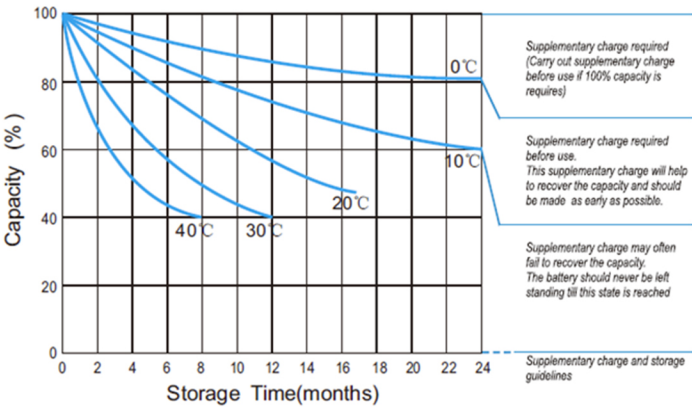
Relationship between Charge Voltage and Temperature



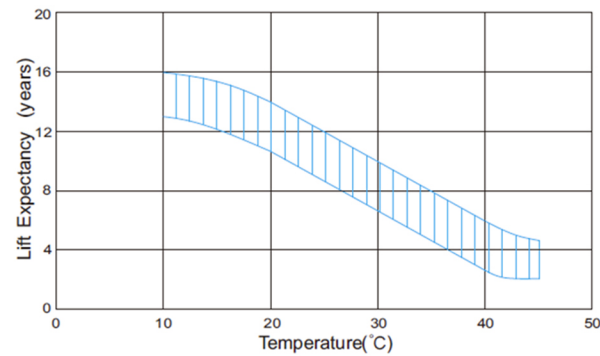
Temperature Effects on Capacity



Storage Characteristics



Effect of Temperature on Long Term Life



Relationship between OCV and State of Charge

