

# CG12-65X 12V 55Ah(10hr)

Gel battery shows some distinctive advantages over flooded battery or AGM battery, such as super thermal stability, high deep discharge capability, good recovery from deep discharge, even if the battery is left discharged for three days, it will recover to 100% of capacity. With the above-mentioned advantages, the gel battery has long service life, specially suitable for motive power applications, such as golf trailer, sruubber, folklift, etc. The deep discharge cycles increased 50% as compared with the AGM battery.

## Battery Construction

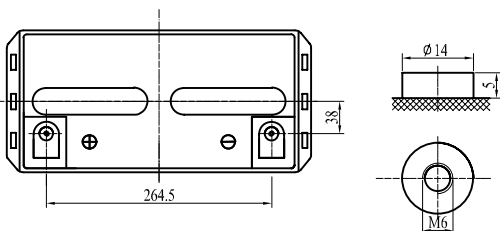
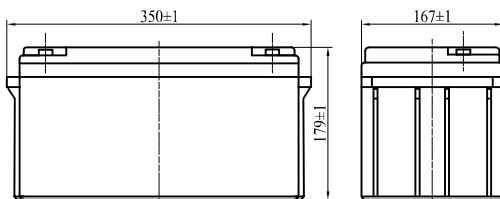
|              |                |                |           |       |              |          |           |             |
|--------------|----------------|----------------|-----------|-------|--------------|----------|-----------|-------------|
| Component    | Positive plate | Negative plate | Container | Cover | Safety valve | Terminal | Separator | Electrolyte |
| Raw material | Lead dioxide   | Lead           | ABS       | ABS   | Rubber       | Copper   | PVC       | Gelled acid |

## General Features

- Nanometer SiO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub> gelled electrolyte technology for efficiency gas recombination of up to 99% and freedom from electrolyte maintenance or water adding.
- Not restricted for air transport-complies with IATA/ICAO Special Provision A67.
- UL-recognized component.
- Can be mounted in any orientation.
- Computer designed lead, calcium tin alloy grid for high power density.
- Long service life, float or cyclic applications.
- Maintenance-free operation.
- Low self discharge.
- Case and cover available in both standard and flame retardant ABS.

## Dimensions and Weight

|                          |             |
|--------------------------|-------------|
| Length(mm / inch)        | 350 / 13.78 |
| Width(mm / inch)         | 167 / 6.57  |
| Height(mm / inch)        | 179 / 7.05  |
| Total Height(mm / inch)  | 183 / 7.20  |
| Approx. Weight(Kg / lbs) | 21.7 / 47.8 |



## Performance Characteristics

|  |              |
|--|--------------|
| Nominal Voltage                                    | 12V          |
| Number of cell                                     | 6            |
| Design Life  | 12 years     |
| Nominal Capacity 77°F(25°C)                        |              |
| 10 hour rate (5.5A, 10.5V)                         | 55.0Ah       |
| 5 hour rate (9.8A, 10.5V)                          | 49.0Ah       |
| 1 hour rate (40.3A, 9.6V)                          | 40.3Ah       |
| Internal Resistance                                |              |
| Fully Charged battery 77°F(25°C)                   | 7.5mOhms     |
| Self-Discharge                                     |              |
| 2% of capacity declined per month at 20°C(average) |              |
| Operating Temperature Range                        |              |
| Discharge  | -20~60°C     |
| Charge   | -10~60°C     |
| Storage  | -20~60°C     |
| Max. Discharge Current 77°F(25°C)                  | 500A(5s)     |
| Short Circuit Current                              | 1300A        |
| Charge Methods: Constant Voltage Charge 77°F(25°C) |              |
| Cycle use  | 14.28-14.52V |
| Maximum charging current                           | 16.5A        |
| Temperature compensation                           | -20mV/°C     |
| Standby use  | 13.38-13.68V |
| No charge current limit is required                |              |
| Temperature compensation                           | -30mV/°C     |

## Discharge Constant Current (Amperes at 77°F25°C)

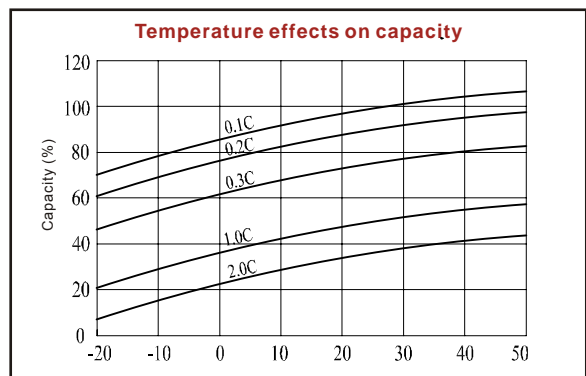
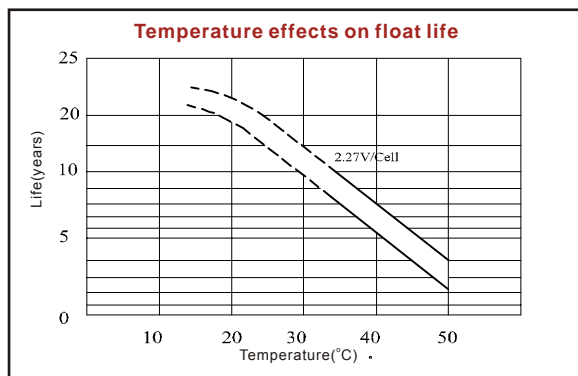
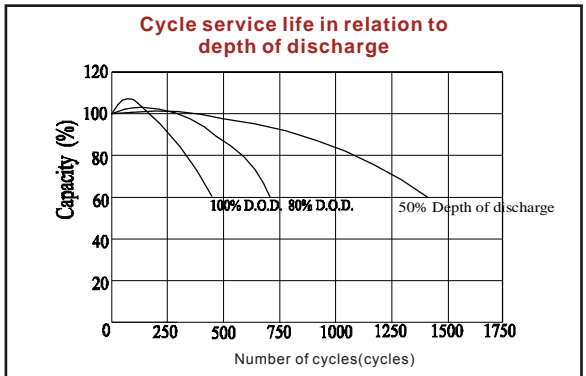
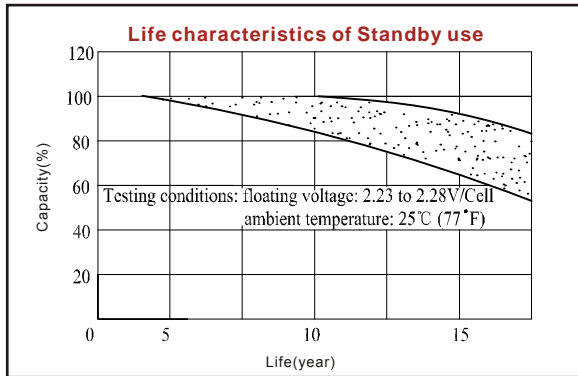
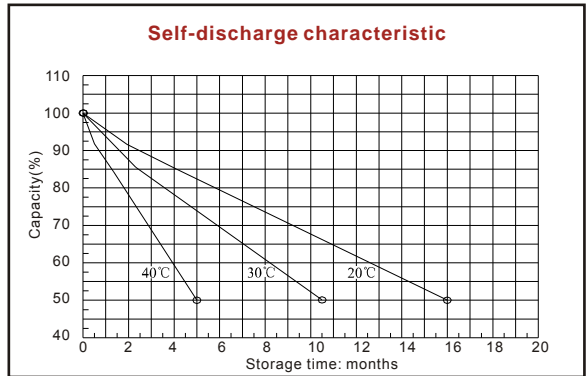
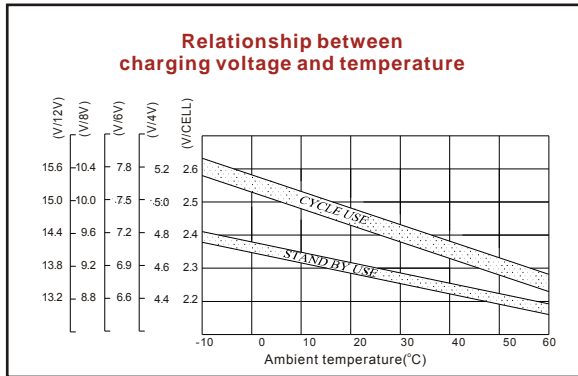
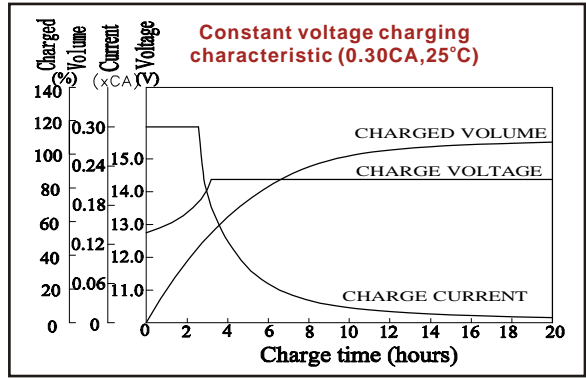
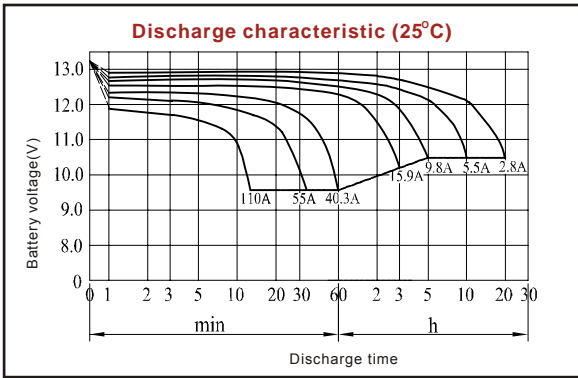
| End point volts/cell | 10min | 15min | 30min | 45min | 1h   | 3h   | 5h   | 10h  | 20h  |
|----------------------|-------|-------|-------|-------|------|------|------|------|------|
| 1.60V                | 134   | 105   | 68.3  | 50    | 40.3 | 16.6 | 10.4 | 5.80 | 2.92 |
| 1.65V                | 125   | 99    | 65.5  | 48.5  | 39.2 | 16.3 | 10.2 | 5.70 | 2.88 |
| 1.70V                | 117   | 93.3  | 62.8  | 46.8  | 38.1 | 15.9 | 10.0 | 5.60 | 2.84 |
| 1.75V                | 108   | 87.6  | 60.0  | 45.0  | 37.0 | 15.5 | 9.80 | 5.50 | 2.80 |
| 1.80V                | 99.5  | 81.9  | 57.3  | 43.3  | 35.9 | 15.1 | 9.60 | 5.40 | 2.76 |

## Discharge Constant Power (Watts at 77°F25°C)

| End point volts/cell | 10min | 15min | 30min | 45min | 1h | 3h   | 5h   | 10h  | 20h  |
|----------------------|-------|-------|-------|-------|----|------|------|------|------|
| 1.60V                | 235   | 190   | 125   | 93    | 76 | 31.5 | 20.0 | 11.3 | 5.7  |
| 1.65V                | 221   | 180   | 120   | 90    | 74 | 30.9 | 19.7 | 11.2 | 5.65 |
| 1.70V                | 206   | 170   | 116   | 87    | 72 | 30.3 | 19.4 | 11.0 | 5.6  |
| 1.75V                | 192   | 160   | 111   | 84    | 70 | 29.6 | 19.1 | 10.9 | 5.55 |
| 1.80V                | 177   | 150   | 106   | 81    | 68 | 29.0 | 18.8 | 10.7 | 5.5  |

(Note)The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

# CG12-65X 12V 55Ah



# CG12-120X 12V 100Ah(10hr)

Gel battery shows some distinctive advantages over flooded battery or AGM battery, such as super thermal stability, high deep discharge capability, good recovery from deep discharge, even if the battery is left discharged for three days, it will recover to 100% of capacity. With the above-mentioned advantages, the gel battery has long service life, specially suitable for motive power applications, such as golf trailer, strubber, forklift, etc. The deep discharge cycles increased 50% as compared with the AGM battery.

## Battery Construction

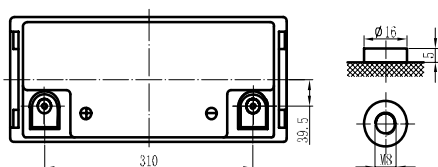
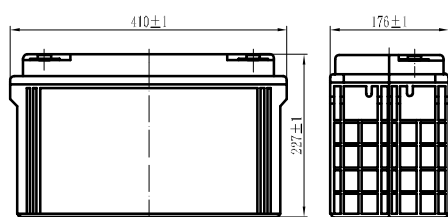
|              |                |                |           |       |              |          |           |             |
|--------------|----------------|----------------|-----------|-------|--------------|----------|-----------|-------------|
| Component    | Positive plate | Negative plate | Container | Cover | Safety valve | Terminal | Separator | Electrolyte |
| Raw material | Lead dioxide   | Lead           | ABS       | ABS   | Rubber       | Copper   | PVC       | Gelled acid |

## General Features

- Nanometer SiO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub> gelled electrolyte technology for efficiency gas recombination of up to 99% and freedom from electrolyte maintenance or water adding.
- Not restricted for air transport-complies with IATA/ICAO Special Provision A67.
- UL-recognized component.
- Can be mounted in any orientation.
- Computer designed lead, calcium tin alloy grid for high power density.
- Long service life, float or cyclic applications.
- Maintenance-free operation.
- Low self discharge.
- Case and cover available in both standard and flame retardant ABS.

## Dimensions and Weight

|                          |             |
|--------------------------|-------------|
| Length(mm / inch)        | 410 / 16.14 |
| Width(mm / inch)         | 176 / 6.93  |
| Height(mm / inch)        | 227 / 8.94  |
| Total Height(mm / inch)  | 227 / 8.94  |
| Approx. Weight(Kg / lbs) | 38.0 / 83.8 |



## Performance Characteristics

|  |              |
|--|--------------|
| Nominal Voltage                                    | 12V          |
| Number of cell                                     | 6            |
| Design Life  | 12 years     |
| Nominal Capacity 77°F(25°C)                        |              |
| 10 hour rate (10.0A, 10.5V)                        | 100.0Ah      |
| 5 hour rate (16.2A, 10.5V)                         | 81.0Ah       |
| 1 hour rate (63.0A, 9.6V)                          | 63.0Ah       |
| Internal Resistance                                |              |
| Fully Charged battery 77°F(25°C)                   | 4.5mOhms     |
| Self-Discharge                                     |              |
| 2% of capacity declined per month at 20°C(average) |              |
| Operating Temperature Range                        |              |
| Discharge  | -20~60°C     |
| Charge   | -10~60°C     |
| Storage  | -20~60°C     |
| Max. Discharge Current 77°F(25°C)                  | 500A(5s)     |
| Short Circuit Current                              | 2250A        |
| Charge Methods: Constant Voltage Charge 77°F(25°C) |              |
| Cycle use  | 14.28-14.52V |
| Maximum charging current                           | 30.0A        |
| Temperature compensation                           | -20mV/°C     |
| Standby use  | 13.38-13.68V |
| No charge current limit is required                |              |
| Temperature compensation                           | -30mV/°C     |

## Discharge Constant Current (Amperes at 77°F25°C)

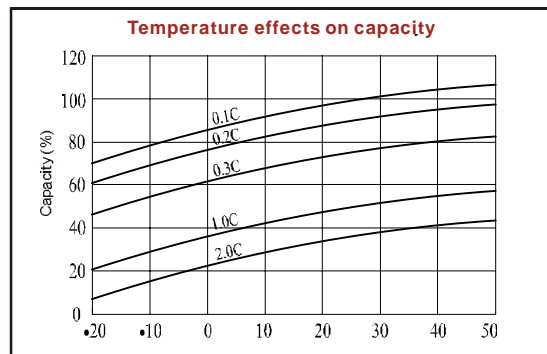
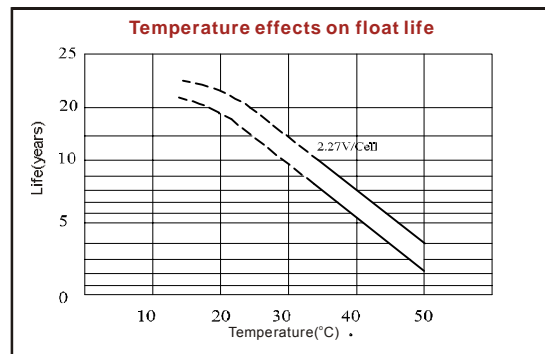
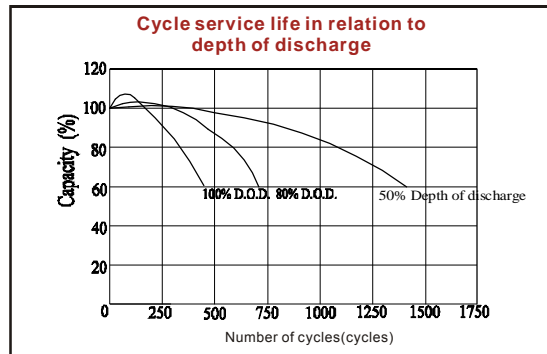
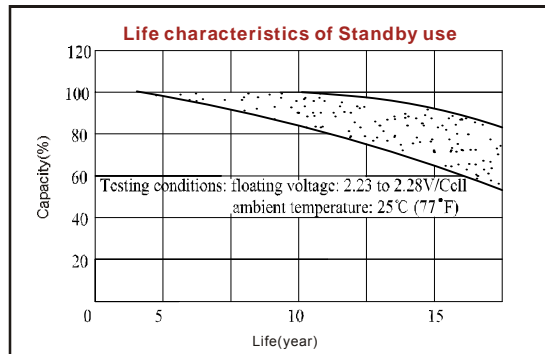
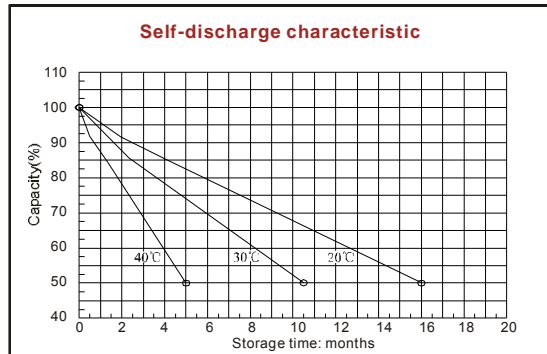
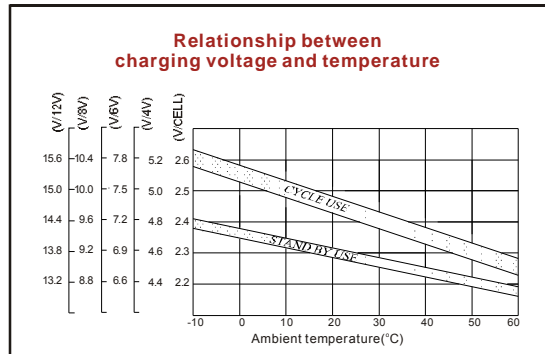
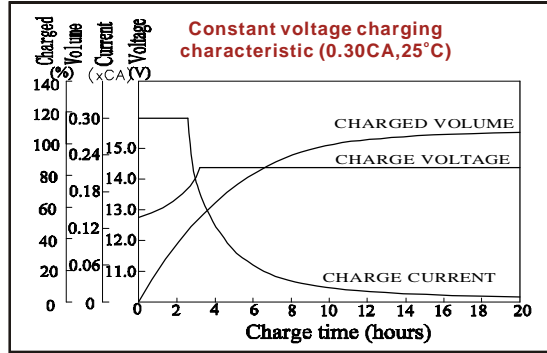
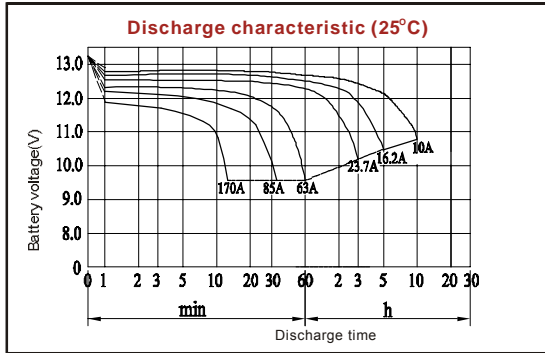
| End Voltage<br>V <sub>i</sub> Cell | 5min | 10min | 15min | 30min | 1h   | 3h   | 5h   | 10h  | 20h  |
|------------------------------------|------|-------|-------|-------|------|------|------|------|------|
| 1.60V                              | 285  | 203   | 167   | 101   | 63.0 | 24.7 | 17.1 | 10.4 | 5.28 |
| 1.65V                              | 270  | 192   | 160   | 97.5  | 60.9 | 24.2 | 16.8 | 10.3 | 5.25 |
| 1.70V                              | 255  | 182   | 153   | 94.2  | 58.7 | 23.7 | 16.5 | 10.2 | 5.20 |
| 1.75V                              | 239  | 172   | 147   | 90.0  | 56.4 | 23.1 | 16.2 | 10.1 | 5.15 |
| 1.80V                              | 224  | 162   | 139   | 85.0  | 54.2 | 22.2 | 15.8 | 10.0 | 5.10 |

## Discharge Constant Power (Watts at 77°F25°C)

| End Voltage<br>V <sub>i</sub> Cell | 5min | 10min | 15min | 30min | 45min | 1h  | 2h   | 3h   | 5h   |
|------------------------------------|------|-------|-------|-------|-------|-----|------|------|------|
| 1.60V                              | 493  | 367   | 303   | 187   | 146   | 119 | 65.1 | 46.7 | 31.9 |
| 1.65V                              | 472  | 353   | 293   | 181   | 142   | 117 | 63.7 | 45.7 | 31.7 |
| 1.70V                              | 451  | 338   | 282   | 176   | 137   | 114 | 62.2 | 44.7 | 31.1 |
| 1.75V                              | 428  | 324   | 271   | 169   | 133   | 110 | 60.3 | 43.7 | 30.6 |
| 1.80V                              | 407  | 308   | 259   | 162   | 128   | 107 | 58.1 | 42.0 | 30.0 |

(Note)The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

# CG12-120X 12V100Ah



# CG12-230X 12V 200Ah(10hr)

Gel battery shows some distinctive advantages over flooded battery or AGM battery, such as super thermal stability, high deep discharge capability, good recovery from deep discharge, even if the battery is left discharged for three days, it will recover to 100% of capacity. With the above-mentioned advantages, the gel battery has long service life, specially suitable for motive power applications, such as golf trailer, strubber, forklift, etc. The deep discharge cycles increased 50% as compared with the AGM battery.

## Battery Construction

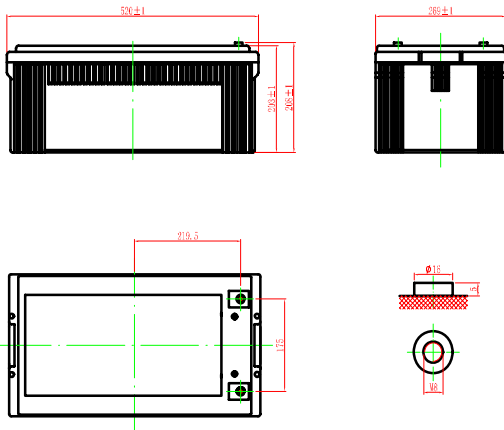
| Component    | Positive plate | Negative plate | Container | Cover | Safety valve | Terminal | Separator | Electrolyte |
|--------------|----------------|----------------|-----------|-------|--------------|----------|-----------|-------------|
| Raw material | Lead dioxide   | Lead           | ABS       | ABS   | Rubber       | Copper   | PVC       | Gelled acid |

## General Features

- Nanometer SiO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub> gelled electrolyte technology for efficiency gas recombination of up to 99% and freedom from electrolyte maintenance or water adding.
- Not restricted for air transport-complies with IATA/ICAO Special Provision A67.
- UL-recognized component.
- Can be mounted in any orientation.
- Computer designed lead, calcium tin alloy grid for high power density.
- Long service life, float or cyclic applications.
- Maintenance-free operation.
- Low self discharge.
- Case and cover available in both standard and flame retardant ABS.

## Dimensions and Weight

|                          |              |
|--------------------------|--------------|
| Length(mm / inch)        | 520 / 20.47  |
| Width(mm / inch)         | 269 / 10.59  |
| Height(mm / inch)        | 203 / 7.99   |
| Total Height(mm / inch)  | 208 / 8.19   |
| Approx. Weight(Kg / lbs) | 72.6 / 160.0 |



## Performance Characteristics

|  |              |
|--|--------------|
| Nominal Voltage                                    | 12V          |
| Number of cell                                     | 6            |
| Design Life  | 12 years     |
| Nominal Capacity 77°F(25°C)                        |              |
| 10 hour rate (20.0A, 10.5V)                        | 200Ah        |
| 5 hour rate (35.6A, 10.5V)                         | 178Ah        |
| 1 hour rate (146.5A, 9.6V)                         | 146.5Ah      |
| Internal Resistance                                |              |
| Fully Charged battery 77°F(25°C)                   | 4.0mOhms     |
| Self-Discharge                                     |              |
| 2% of capacity declined per month at 20°C(average) |              |
| Operating Temperature Range                        |              |
| Discharge  | -20~60°C     |
| Charge   | -10~60°C     |
| Storage  | -20~60°C     |
| Max. Discharge Current 77°F(25°C)                  | 1000A(5s)    |
| Short Circuit Current                              | 3000A        |
| Charge Methods: Constant Voltage Charge 77°F(25°C) |              |
| Cycle use  | 14.28-14.52V |
| Maximum charging current                           | 60.0A        |
| Temperature compensation                           | -20mV/°C     |
| Standby use  | 13.38-13.68V |
| No charge current limit is required                |              |
| Temperature compensation                           | -30mV/°C     |

## Discharge Constant Current (Amperes at 77°F25°C)

| End point volts/cell | 10min | 15min | 30min | 45min | 1h    | 3h   | 5h   | 10h  | 20h  |
|----------------------|-------|-------|-------|-------|-------|------|------|------|------|
| 1.60V                | 406.1 | 332.0 | 225.8 | 173.2 | 146.5 | 60.4 | 37.8 | 21.1 | 10.6 |
| 1.65V                | 378.8 | 313.0 | 216.5 | 168.0 | 142.5 | 59.3 | 37.1 | 20.7 | 10.5 |
| 1.70V                | 354.5 | 295.0 | 207.6 | 162.1 | 138.5 | 57.8 | 36.4 | 20.4 | 10.3 |
| 1.75V                | 327.3 | 277.0 | 198.3 | 155.8 | 134.5 | 56.4 | 35.6 | 20.0 | 10.2 |
| 1.80V                | 301.5 | 259.0 | 189.4 | 150.0 | 130.5 | 54.9 | 34.9 | 19.6 | 10.0 |

## Discharge Constant Power (Watts at 77°F25°C)

| End point volts/cell | 10min | 15min | 30min | 45min | 1h    | 3h    | 5h   | 10h  | 20h  |
|----------------------|-------|-------|-------|-------|-------|-------|------|------|------|
| 1.60V                | 712.1 | 600.8 | 413.2 | 322.1 | 276.4 | 114.5 | 72.7 | 41.1 | 20.7 |
| 1.65V                | 669.7 | 569.2 | 396.7 | 311.7 | 269.1 | 112.4 | 71.6 | 40.7 | 20.5 |
| 1.70V                | 624.2 | 537.5 | 383.5 | 301.3 | 261.8 | 110.2 | 70.5 | 40.0 | 20.4 |
| 1.75V                | 581.8 | 505.9 | 366.9 | 290.9 | 254.5 | 107.6 | 69.5 | 39.6 | 20.2 |
| 1.80V                | 536.4 | 474.3 | 350.4 | 280.5 | 247.3 | 105.5 | 68.4 | 38.9 | 20.0 |

(Note)The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

# CG12-230X 12V 200Ah

