

# OPzV12-180(12V180Ah)

OPzV series is Valve Regulated Lead Acid battery that adopts immobilized GEL and Tubular Plate technology to offer high reliability and performance. The Battery is designed and manufactured according to DIN standards and with die-casting positive grid and patented formula of active material OPzV series exceeds DIN standard values with more than 18 years floating design life at 25 °C and It is the best solution for cyclic use under extreme operating conditions.

## Specification

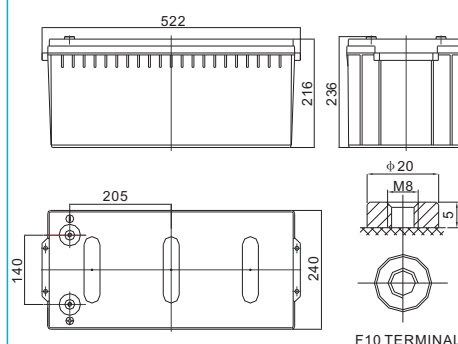
|   |   |
|---|---|
| <b>Cells Per Unit</b>                     | 6   |
| <b>Voltage Per Unit</b>                   | 2   |
| <b>Nominal Capacity</b>                   | 180Ah@10hr-rate to 1.80V per cell @25°C   |
| <b>Weight</b>                             | Approx. 62Kg (Tolerance ±3.0%)  |
| <b>Internal Resistance</b>                | Approx. 6.0 mΩ  |
| <b>Terminal</b>                           | F10(M8)   |
| <b>Max. Discharge Current</b>             | 1800A (5 sec)   |
| <b>Design Life</b>                        | 20 years (floating charge)  |
| <b>Max. Charging Current</b>              | 36.0 A  |
| <b>Reference Capacity</b>                 | C3 141.2AH<br>C5 158.4AH<br>C10 180.0AH<br>C20 192.8AH  |
| <b>Float Charging Voltage</b>             | 13.5 V~13.8 V @ 25°C<br>Temperature Compensation: -3mV/°C/Cell  |
| <b>Cycle Use Voltage</b>                  | 14.2 V~14.4 V @ 25°C<br>Temperature Compensation: -4mV/°C/Cell  |
| <b>Operating Temperature Range</b>        | Discharge: -40°C~60°C<br>Charge: -20°C~50°C<br>Storage: -40°C~60°C  |
| <b>Normal Operating Temperature Range</b> | 25°C ±5°C   |
| <b>Self Discharge</b>                     | Valve Regulated Lead Acid (VRLA) batteries can be stored for up to 6 months at 25°C and then recharging is recommended. Monthly Self-discharge ratio is less than 2% at 20°C. Please charge batteries before using. |
| <b>Container Material</b>                 | A.B.S. UL94-HB, UL94-V0 Optional.   |



GAM20206-0910-E-16

## Dimensions

Unit: mm



|              |                       |
|--------------|-----------------------|
| Length       | 522±2mm (20.6 inches) |
| Width        | 240±2mm (9.45 inches) |
| Height       | 216±2mm (8.5 inches)  |
| Total Height | 236±2mm (9.29 inches) |
| Torque Value | 10~12 N*m             |

### Constant Current Discharge Characteristics : A(25°C)

| F.V/ Time | 10min | 15min | 30min | 1h    | 2h    | 3h    | 5h    | 8h    | 10h   | 20h   |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1.60V     | 294.6 | 236.4 | 156.5 | 107.8 | 66.78 | 51.75 | 34.03 | 22.92 | 19.26 | 10.11 |
| 1.65V     | 276.2 | 223.5 | 150.9 | 104.6 | 64.62 | 50.63 | 33.30 | 22.56 | 18.90 | 9.923 |
| 1.70V     | 252.6 | 208.3 | 144.3 | 101.1 | 62.46 | 48.95 | 32.58 | 22.20 | 18.54 | 9.734 |
| 1.75V     | 231.2 | 191.9 | 134.8 | 95.79 | 60.30 | 47.08 | 31.67 | 21.83 | 18.36 | 9.639 |
| 1.80V     | 201.5 | 171.6 | 125.3 | 89.96 | 57.42 | 45.03 | 30.59 | 21.29 | 18.00 | 9.450 |
| 1.85V     | 167.6 | 148.6 | 111.6 | 82.03 | 53.10 | 42.04 | 29.14 | 20.39 | 17.23 | 9.044 |

### Constant Power Discharge Characteristics : WPC(25°C)

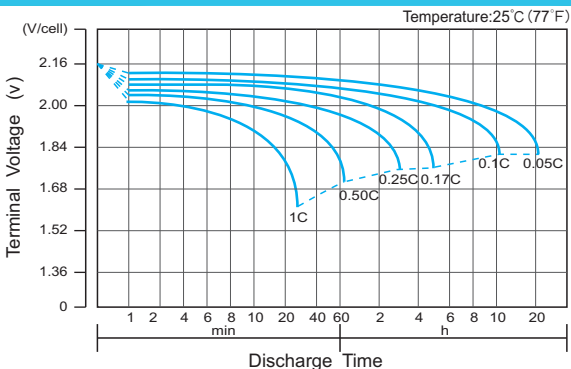
| F.V/ Time | 10min | 15min | 30min | 1h    | 2h    | 3h    | 5h    | 8h    | 10h   | 20h   |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1.60V     | 462.0 | 383.4 | 287.6 | 204.3 | 127.6 | 99.59 | 66.24 | 45.29 | 37.98 | 19.94 |
| 1.65V     | 450.2 | 375.7 | 280.1 | 199.3 | 124.0 | 97.90 | 64.98 | 44.57 | 37.44 | 19.66 |
| 1.70V     | 427.3 | 361.1 | 270.4 | 194.0 | 120.6 | 94.91 | 63.71 | 44.03 | 36.90 | 19.37 |
| 1.75V     | 387.7 | 335.2 | 255.0 | 184.5 | 117.0 | 91.93 | 62.26 | 43.31 | 36.54 | 19.18 |
| 1.80V     | 333.5 | 303.8 | 239.2 | 174.3 | 111.8 | 87.81 | 60.09 | 42.23 | 35.82 | 18.81 |
| 1.85V     | 275.8 | 254.9 | 214.8 | 159.6 | 103.7 | 82.21 | 57.37 | 40.42 | 34.38 | 18.05 |

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

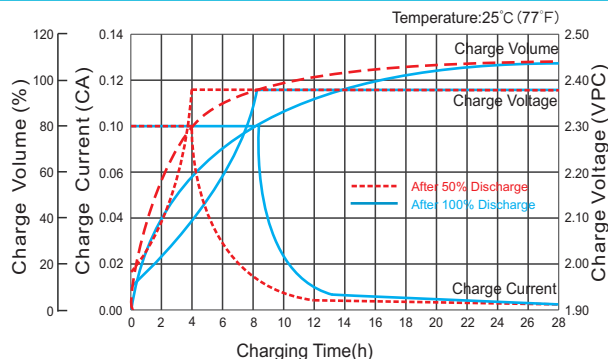
The battery must be fully charged before the capacity test. The C<sub>10</sub> should reach 95% after the first cycle and 100% after the third cycle.

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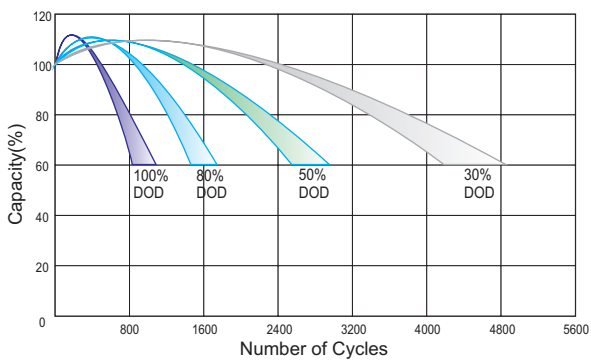
**Discharge Characteristics Curve**



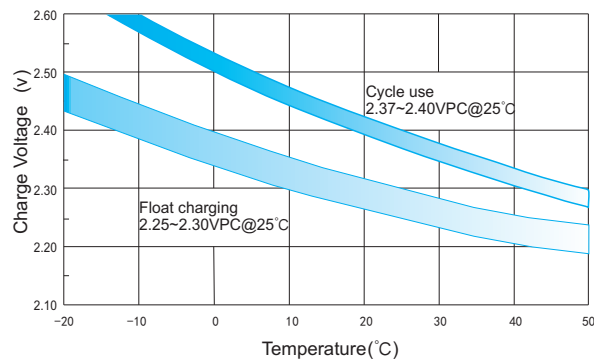
**Charge Characteristic Curve for Cycle Use(IU)**



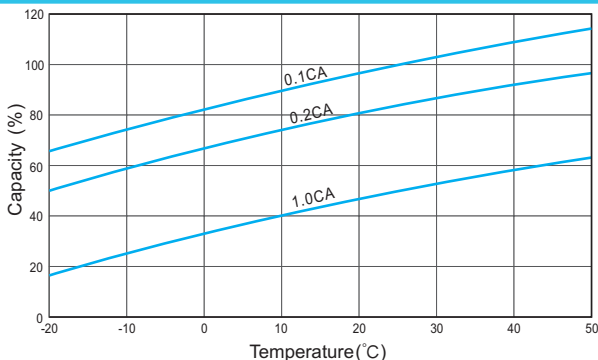
**Cycle Life in Relation to Depth of Discharge**



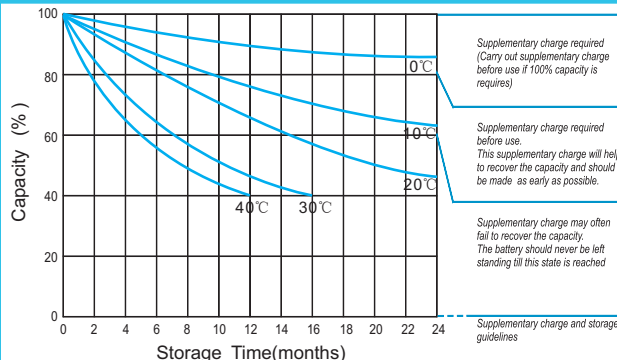
**Relationship Between Charging Voltage and Temperature**



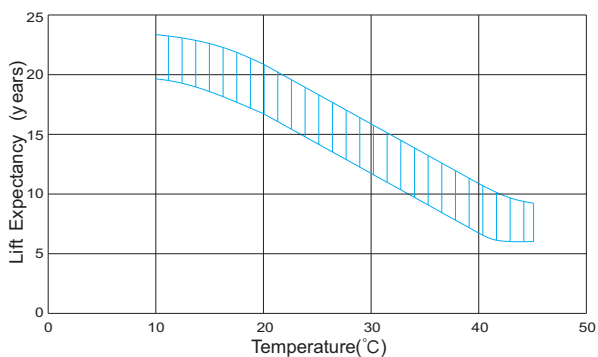
**Temperature Effects on Capacity**



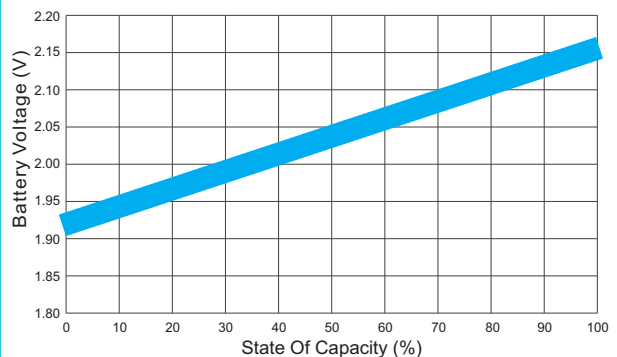
**Storage Characteristics**



**Effect of Temperature on Long Term Life**



**Relationship of OCV And State of Charge(20°C)**



(Note) All above information shall be changed without prior notice, Ritar reserves the right to explain and update the latest information.