

OPzV series is a 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 patent formula of active material. OPzV series exceeds DIN standard values with more than 20 years floating design life at 25°C and is even more suitable for cyclic use under extreme operating conditions.

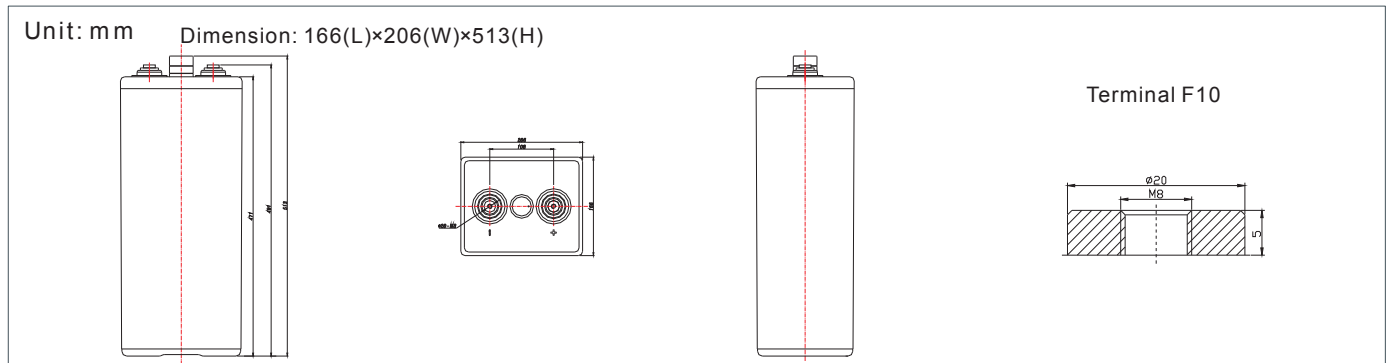
Specification

| | |
|-------------------------------------|--|
| Voltage Per Unit | 2V(single cell) |
| Capacity | 500Ah@10hr-rate to 1.80V per cell @25°C |
| Weight | Approx. 39 Kg |
| Max. Discharge Current | 2000 A (5 sec) |
| Internal Resistance | Approx. 0.35 mΩ |
| Operating Temperature Range | Discharge: -40°C~70°C Charge: 0°C~50°C Storage: -20°C~60°C |
| Optimal Operating Temperature Range | 25°C± 5°C |
| Float charging Voltage | 2.25 to 2.3 VDC/unit Average at 25°C |
| Maximum Charging Current Limit | 100 A |
| Cycle Service | 2.37 to 2.40 VDC/unit Average at 25°C |
| Self Discharge | Self-discharge ratio less than 2% per month at 25°C. Please charge batteries before using. |
| Terminal | Thread insert & Bolt (F10-M8) |
| Container Material | A.B.S. (UL94-HB), and UL94-V0 is optional |



ISO9001:2000 Certificate

Dimensions



Constant Current Discharge Characteristics : A(25°C)

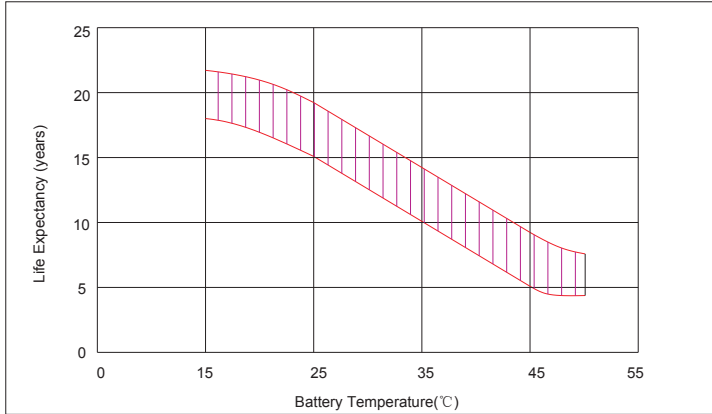
| F.V/ Time | 30min | 1h | 2h | 3h | 4h | 5h | 6h | 8h | 10h | 20h |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1.90 | 246.0 | 195.0 | 137.5 | 104.3 | 85.50 | 73.88 | 66.50 | 51.90 | 44.50 | 23.50 |
| 1.87 | 275.0 | 215.0 | 147.5 | 110.6 | 90.25 | 77.72 | 70.50 | 54.32 | 46.50 | 24.50 |
| 1.83 | 315.0 | 240.0 | 160.0 | 117.9 | 95.00 | 81.08 | 73.00 | 56.75 | 48.50 | 25.50 |
| 1.80 | 350.0 | 260.0 | 166.0 | 121.3 | 96.90 | 83.00 | 75.00 | 58.20 | 50.00 | 26.50 |
| 1.75 | 390.0 | 278.5 | 173.5 | 126.1 | 98.50 | 85.00 | 76.50 | 59.17 | 51.00 | 27.00 |
| 1.70 | 430.0 | 287.5 | 178.5 | 128.5 | 100.2 | 86.00 | 77.50 | 59.66 | 51.50 | 27.00 |
| 1.65 | 443.5 | 305.5 | 184.5 | 132.0 | 101.7 | 87.00 | 78.50 | 60.14 | 52.00 | 27.50 |
| 1.60 | 462.5 | 316.0 | 191.5 | 137.5 | 104.5 | 88.50 | 79.50 | 60.63 | 52.50 | 27.50 |

Constant Power Discharge Characteristics : W(25°C)

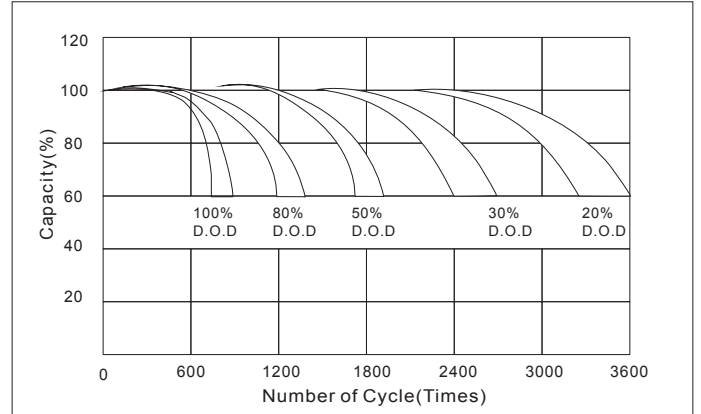
| F.V/ Time | 30min | 1h | 2h | 3h | 4h | 5h | 6h | 8h | 10h | 20h |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1.90 | 470.8 | 374.4 | 265.8 | 202.0 | 167.3 | 145.5 | 131.5 | 103.8 | 90.70 | 47.50 |
| 1.87 | 518.1 | 406.5 | 281.9 | 211.6 | 176.4 | 152.5 | 139.0 | 108.2 | 94.58 | 49.50 |
| 1.83 | 580.4 | 443.2 | 300.0 | 222.6 | 184.9 | 158.5 | 143.5 | 112.0 | 97.97 | 51.50 |
| 1.80 | 634.2 | 472.9 | 310.0 | 227.6 | 188.4 | 162.0 | 147.0 | 114.5 | 100.4 | 52.50 |
| 1.75 | 687.9 | 494.0 | 320.1 | 234.7 | 191.0 | 166.0 | 149.5 | 115.9 | 101.9 | 53.50 |
| 1.70 | 737.7 | 499.0 | 328.1 | 238.7 | 194.0 | 167.5 | 151.0 | 116.9 | 102.8 | 54.00 |
| 1.65 | 750.2 | 521.1 | 337.2 | 243.7 | 196.5 | 169.0 | 152.5 | 117.9 | 103.3 | 54.00 |
| 1.60 | 759.3 | 537.2 | 345.2 | 251.8 | 201.5 | 170.5 | 153.5 | 118.3 | 103.8 | 54.50 |

All mentioned values are average values.

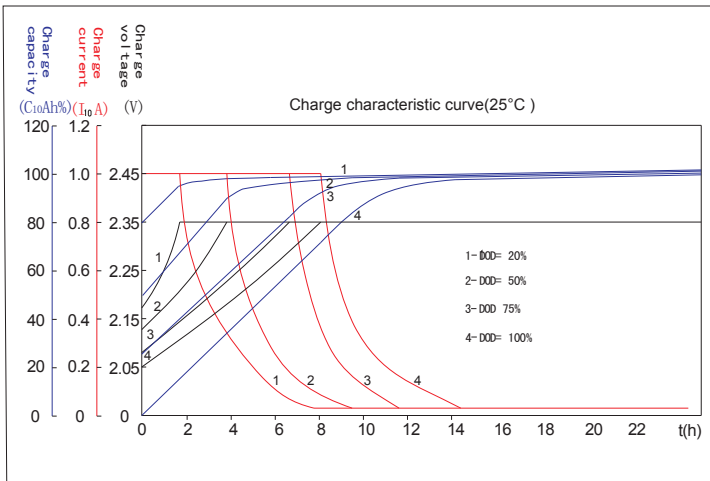
Effect of temperature on long term float life



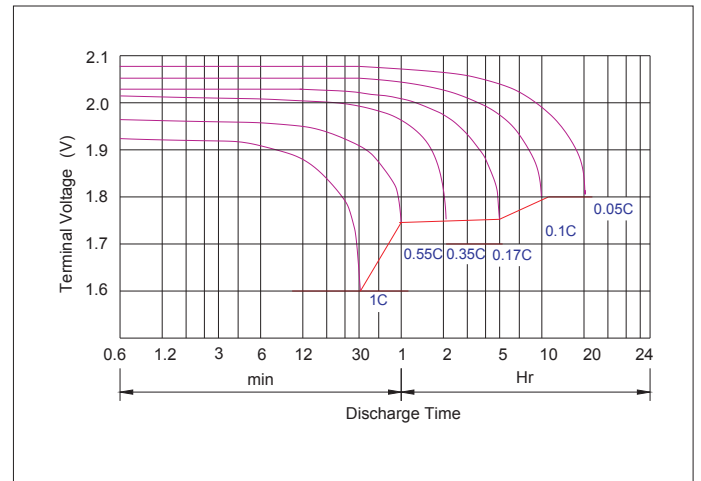
Life characteristics of cyclic use



Charge characteristic Curve for standby use



Discharge characteristic Curve



Long time discharge capacity for solar/wind application

| Model | Capacity | | | | | |
|-----------|----------|----------|----------|-----------|-----------|-----------|
| | C24 (Ah) | C48 (Ah) | C72 (Ah) | C100 (Ah) | C120 (Ah) | C240 (Ah) |
| OPzV2-500 | 552 | 613 | 615 | 625 | 642 | 653 |

F.V=1.85VPC

Capacity factors vs temperature (OPzV series)

| Temperature | -30°C | -20°C | -10°C | 0°C | 10°C | 20°C | 25°C | 30°C | 40°C | 45°C | 50°C |
|-------------|-------|-------|-------|-----|------|------|------|------|------|------|------|
| Capacity | 60% | 75% | 83% | 89% | 92% | 99% | 100% | 103% | 105% | 107% | 109% |

Discharge Current VS. Final Voltage

| Discharge current | Final voltage (V) |
|-----------------------------------|-------------------|
| $I_{dis} \leq 0.1I_{10}$ | 1.90 |
| $0.1I_{10} < I_{dis} \leq I_{10}$ | 1.85 |
| $I_{10} < I_{dis} \leq 4I_{10}$ | 1.80 |
| $4I_{10} < I_{dis} \leq 6I_{10}$ | 1.75 |
| $6I_{10} < I_{dis} \leq 10I_{10}$ | 1.70 |
| $I_{dis} > 15I_{10}$ | 1.60 |

Charge the batteries at least once every one year, if they are stored at 25°C.

Charging Method:

| | |
|------------------|--|
| Constant Voltage | -0.2Cx2h+2.35~2.40V, 24h, Max. Current 0.2CA |
| Constant Current | -0.2Cx2h+0.1CAx 12h |

Maintenance & Cautions

Float Service:

- ✘ Every month, recommend inspection every battery voltage.
- ✘ Every three months, recommend equalization charge for one time.

Equalization charge method:

Discharge: 40~50% rate capacity discharge.

Charge: Max. current 0.2CA, constant voltage 2.35-2.40V/Cell charge 24h.

- ✘ Effect of temperature on float charge voltage: -3mV/°C/Cell.

- ✘ Service life will be directly affected by the number of discharge

cycles, depth of discharge, ambient temperature and charging method.