



## OPzV Series-Tubular Gel

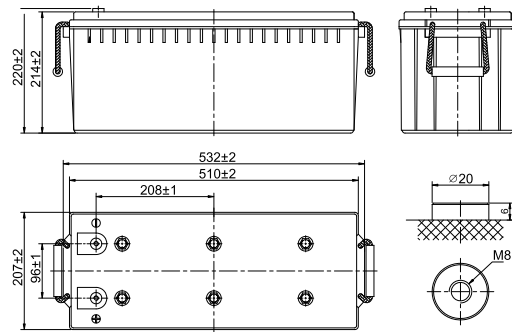
### 12V 8OPzV160(12V160Ah)

#### Specifications

|                               |                       |                                |
|-------------------------------|-----------------------|--------------------------------|
| Rated Voltage                 | 12V                   |                                |
| Nominal Capacity              | 160Ah                 | (C <sub>10</sub> , 1.80V/cell) |
| Dimension                     | Length                | 532mm(20.94in.)                |
|                               | Width                 | 207mm(8.15in.)                 |
|                               | Container Height      | 214mm(8.43in.)                 |
|                               | Total Height          | 220mm(8.66in.)                 |
| Approx Weight                 | 59.3Kg (130.73 lbs)   |                                |
| Terminal                      | M8                    |                                |
| Container Material            | ABS                   |                                |
| Rated Capacity (25°C)         | 160.0 Ah              | (10hr, 16.0A, 1.80V/cell)      |
|                               | 140.5 Ah              | (5hr, 28.1A, 1.75V/cell)       |
|                               | 120.9 Ah              | (3hr, 40.3A, 1.75V/cell)       |
|                               | 94.9 Ah               | (1hr, 94.9A, 1.67V/cell)       |
| Max. Discharge Current(5s)    | 1280A                 |                                |
| Internal Resistance(25°C)     | Approx.5.1mΩ          |                                |
| Operating Temp.Range          | Discharge             | -20°C~55°C (-4°F~131°F)        |
|                               | Charge                | 0°C~40°C (32°F~104°F)          |
|                               | Storage               | -20°C~50°C (-4°F~122°F)        |
| Nominal Operating Temp. Range | 25±3°C (77±5°F)       |                                |
| Max.Charging Current(25°C)    | 40.0A                 |                                |
| Charge voltage(25°C)          | Float                 | 13.5V                          |
|                               | Temp. Coefficient     | -3mV/cell/°C                   |
|                               | Cycle(Equalization)   | 14.1~14.4V                     |
| Effect of temp. to Capacity   | 40°C (104°F)          | 106%                           |
|                               | 25°C (77°F)           | 100%                           |
|                               | 0°C (32°F)            | 86%                            |
| Self Discharge                | ≤3% per month at 25°C |                                |



#### Layout



#### Constant Current Discharge (Amperes) at 25 °C (77°F)

| F.V/Time   | 10min | 15min | 30min | 1h   | 2h   | 3h   | 5h   | 8h   | 10h  |
|------------|-------|-------|-------|------|------|------|------|------|------|
| 1.85V/cell | 154.4 | 136.2 | 101.8 | 74.4 | 47.2 | 36.0 | 25.8 | 18.1 | 15.3 |
| 1.80V/cell | 185.7 | 157.3 | 114.2 | 81.6 | 51.0 | 38.6 | 27.0 | 18.9 | 16.0 |
| 1.75V/cell | 213.0 | 175.8 | 122.9 | 86.9 | 53.6 | 40.3 | 28.1 | 19.4 | 16.3 |
| 1.70V/cell | 232.6 | 190.9 | 131.5 | 91.8 | 55.5 | 41.9 | 28.8 | 19.7 | 16.5 |
| 1.67V/cell | 254.3 | 204.8 | 137.6 | 94.9 | 57.4 | 43.4 | 29.4 | 20.0 | 16.8 |
| 1.60V/cell | 271.4 | 216.6 | 142.7 | 97.5 | 59.4 | 44.3 | 30.1 | 20.3 | 17.1 |

#### Constant Power Discharge (Watts/cell) at 25 °C (77°F)

| F.V/Time   | 10min | 15min | 30min | 1h    | 2h    | 3h   | 5h   | 8h   | 10h  |
|------------|-------|-------|-------|-------|-------|------|------|------|------|
| 1.85V/cell | 254.1 | 233.6 | 194.2 | 144.8 | 92.2  | 70.4 | 50.7 | 35.8 | 30.6 |
| 1.80V/cell | 307.2 | 278.4 | 218.1 | 158.1 | 99.4  | 75.2 | 53.1 | 37.4 | 31.8 |
| 1.75V/cell | 357.1 | 307.2 | 232.5 | 167.4 | 104.0 | 78.7 | 55.0 | 38.4 | 32.5 |
| 1.70V/cell | 393.6 | 330.9 | 246.6 | 176.0 | 107.2 | 81.3 | 56.3 | 39.0 | 32.8 |
| 1.67V/cell | 414.7 | 344.3 | 255.4 | 180.8 | 110.2 | 83.8 | 57.4 | 39.5 | 33.3 |
| 1.60V/cell | 425.6 | 351.4 | 262.2 | 185.3 | 113.4 | 85.3 | 58.6 | 40.2 | 33.8 |



## OPzV Series-Tubular Gel 12V 8OPzV160(12V160Ah)

### Applications

- Telecommunications
- Radio and cellular telephone relay stations
- Emergency lighting systems
- Power stations, Conventional power stations, alternative pwer(solar,wind)
- Large UPS and computer back-up
- Railway signaling
- Maritime standby power on ships and ashore
- Process and control engineering
- Standby power
- Buoy lighting

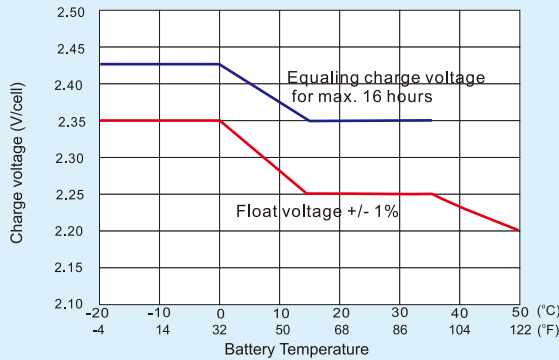
### General Features

- 20 years design life(20°C)
- Better recovery performance
- Wide working temperature range (-20~55)°C
- No electrolyte stratification provides longer service life
- High recombination efficient
- Build in copper core based in lead will carry large current
- Separator imported form AMER-SIL high porosity, PVC-SiO<sub>2</sub> and low resistance
- Pasted negative plate special grid design increase the active material.availability large current discharge and charge ability
- Tubuler type positive plate (polyester tube) prevent the active material from falling. Muti metal alloy pressed positive grid increase the anti corrosion ability and service life

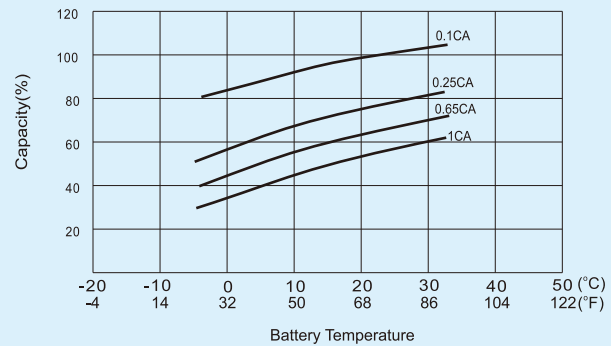
### Standards

- Compliance with IEC 60896, IEC 61427, DIN 40742 standards
- UL, CE Certified
- Manufactured in KOYAMA® IATF16949, OHSAS 18001,ISO 9001 and ISO 14001 certified production facilities

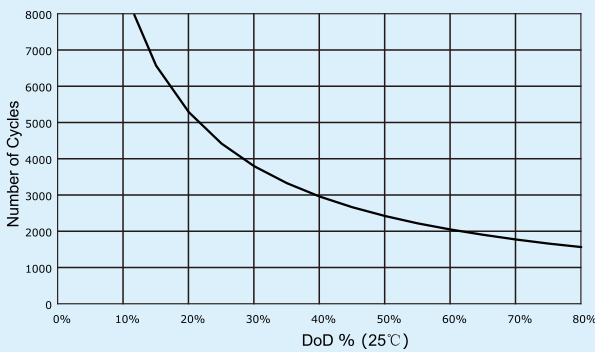
### Charge voltage vs ambient temperature curve



### Temperature effects in relation to battery capacity



### Cycle Life in Relation to DOD



### General Relation of Capacity VS. Storage Time

