

# PT GLOBAL MRS INDONESIA

## ZR 12-120 12V 120Ah

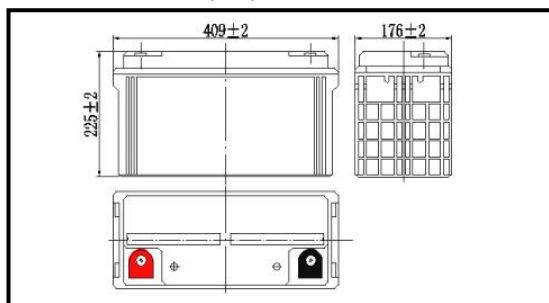
### Valve Regulated Lead Acid Battery



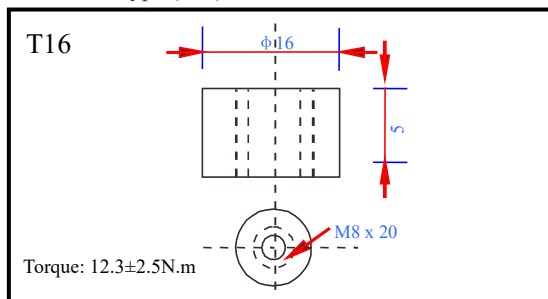
#### Specifications

|                       |                        |                     |
|-----------------------|------------------------|---------------------|
| Nominal voltage       | 12V (6 cells per unit) |                     |
| Rated capacity (10HR) | 120Ah/10.8V            |                     |
| Dimensions            | Length                 | 409±2mm (16.10inch) |
|                       | Width                  | 176±2mm (6.93inch)  |
|                       | Height                 | 225±2mm (8.86inch)  |
|                       | Total height           | 225±2mm (8.86inch)  |
| Approx. weight        | 35.0kg (76.70lbs)±3%   |                     |

#### Outer dimensions (mm)



#### Terminal type (mm)



#### Characteristics

|   |   |  |
|---|---|--|
| Capacity (25°C)                           | 10HR (10.8V)                            | 120Ah  |
|   | 3HR (10.8V)                             | 90Ah   |
|   | 1HR (10.5V)                             | 66Ah   |
| Terminal type                             |   | T16  |
| Internal resistance (Fully charged, 25°C) |   | Approx. 4mΩ  |
| Capacity affected by temperature (10HR)   | 40°C                                    | 102%   |
|   | 25°C                                    | 100%   |
|   | 0°C                                     | 85%  |
|   | -15°C                                   | 65%  |
| Self-discharge (25°C)                     | 3 months                                | Remaining capacity: 91%                                  |
|   | 6 months                                | Remaining capacity: 82%                                  |
|   | 12 months                               | Remaining capacity: 65%                                  |
| Nominal operating temperature             |   | 25°C±3°C (77°F±5°F)                                      |
| Operating temperature range               | Discharge                               | -15°C~50°C (5°F~122°F)                                   |
|   | Charge                                  | -10°C~50°C (14°F~122°F)                                  |
|   | Storage                                 | -20°C~50°C (-4°F~122°F)                                  |
| Float charging voltage (25°C)             |   | 13.50 to 13.80V Temperature compensation: -18mV/°C/Block |
| Cyclic charging voltage (25°C)            |   | 14.50 to 15.00V Temperature compensation: -30mV/°C/Block |
| Maximum charging current                  |   | 36A  |
| Maximum discharge current                 |   | 950A (5 sec.)  |
| Design life                               | 10 years for floating (25°C)            |  |
|   | Eurobat (20°C): 10-12 years, long life. |  |

#### Construction

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

#### Constant current discharge characteristics unit: Ampere/Block (at 25°C, 77°F)

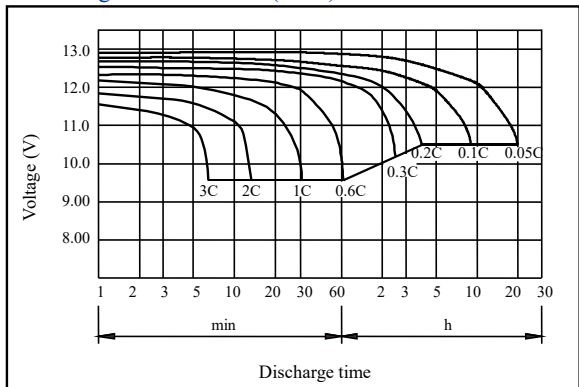
| F.V/Time | 10min | 15min | 30min | 60min | 2h   | 3h   | 4h   | 5h   | 8h   | 10h  | 20h  |
|----------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| 9.60V    | 262   | 202   | 121   | 74.2  | 43.8 | 31.6 | 25.2 | 21.5 | 14.8 | 12.2 | 6.47 |
| 9.90V    | 254   | 197   | 118   | 73.0  | 43.6 | 31.4 | 25.1 | 21.4 | 14.7 | 12.2 | 6.46 |
| 10.2V    | 243   | 190   | 115   | 71.2  | 43.2 | 31.2 | 24.9 | 21.3 | 14.6 | 12.2 | 6.44 |
| 10.5V    | 233   | 183   | 112   | 69.0  | 42.6 | 31.0 | 24.7 | 21.1 | 14.5 | 12.1 | 6.40 |
| 10.8V    | 220   | 173   | 108   | 66.7  | 41.5 | 30.0 | 24.0 | 20.5 | 14.1 | 12.0 | 6.36 |

#### Constant power discharge characteristics unit: Watt/Block (at 25°C, 77°F)

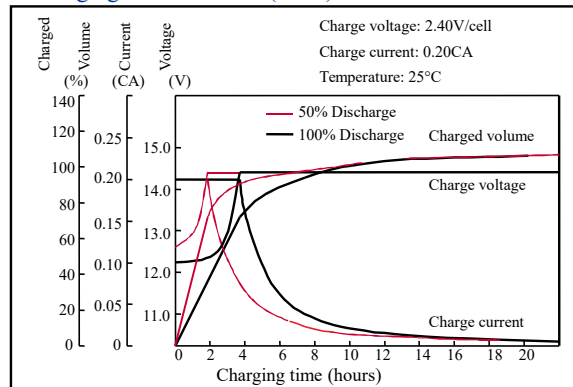
| F.V/Time | 10min | 15min | 30min | 60min | 2h  | 3h  | 4h  | 5h  | 8h  | 10h | 20h  |
|----------|-------|-------|-------|-------|-----|-----|-----|-----|-----|-----|------|
| 9.60V    | 2825  | 2214  | 1353  | 845   | 508 | 371 | 297 | 255 | 176 | 146 | 77.7 |
| 9.90V    | 2741  | 2160  | 1326  | 833   | 505 | 369 | 295 | 253 | 175 | 146 | 77.5 |
| 10.2V    | 2628  | 2081  | 1285  | 812   | 500 | 367 | 293 | 251 | 174 | 145 | 77.3 |
| 10.5V    | 2514  | 2010  | 1254  | 786   | 493 | 364 | 291 | 250 | 172 | 144 | 76.9 |
| 10.8V    | 2373  | 1904  | 1208  | 761   | 408 | 353 | 282 | 242 | 167 | 143 | 76.3 |

Note 1: Above characteristics data can be obtained within three charge and discharge cycles.

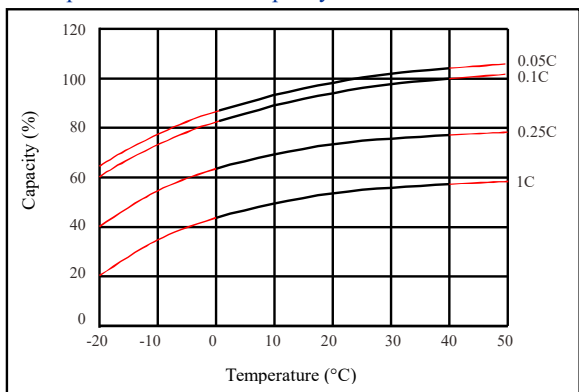
## ● Discharge characteristics (25°C)



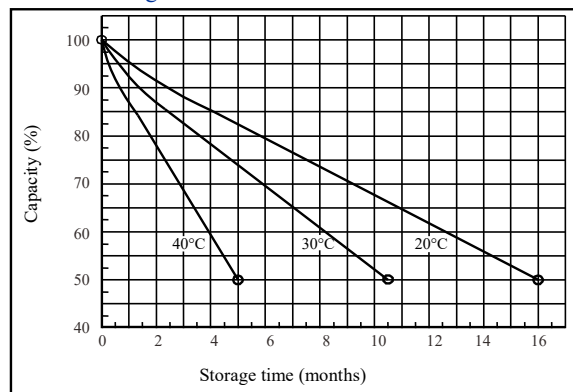
## ● Charging characteristics (25°C)



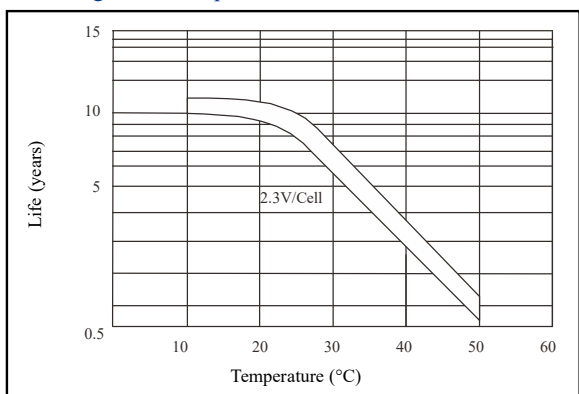
## ● Temperature effects on capacity



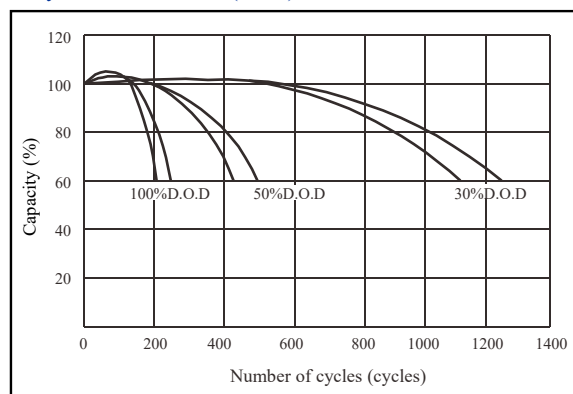
## ● Self-discharge characteristics



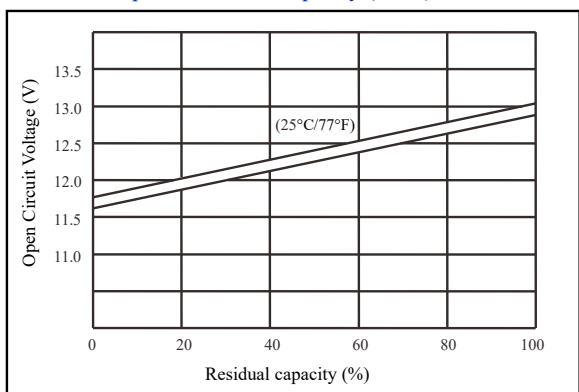
## ● Floating life on temperature



## ● Cycle life on D.O.D (25°C)



## ● Relationship for OCV and capacity (25°C)



## ● Relationship for charging voltage and temperature

