



## MF50-12<sub>(12V50Ah/20hr)</sub>

The rechargeable batteries are lead-lead dioxide systems. The dilute sulfuric acid electrolyte is absorbed by separators and thus immobilized.

Should the battery be accidentally overcharged producing hydrogen and oxygen, Special one-way valves allow the gases to escape thus avoiding excessive pressure build-up. Otherwise, the battery is completely sealed and is, therefore, maintenance-free, leak proof and usable in any position.

### Battery Construction

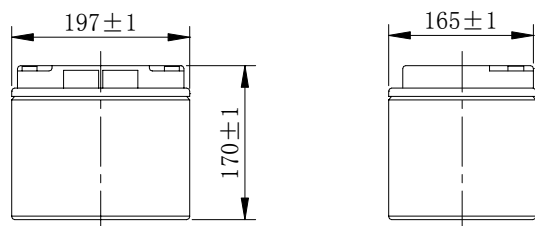
| Component    | Positive plate | Negative plate | Container | Cover | Safety valve | Terminal | Separator  | Electrolyte   |
|--------------|----------------|----------------|-----------|-------|--------------|----------|------------|---------------|
| Raw material | Lead dioxide   | Lead          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

### General Feature

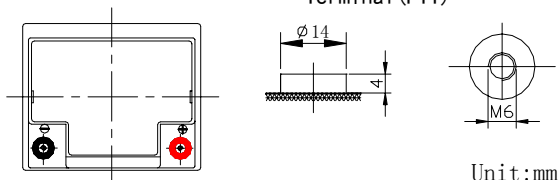
- Absorbent Glass Mat(AGM) technology for efficient gas recombination of up to 99% and freedom from electrolyte maintenance or water adding.
- Not restricted for air transport-complies with IATA/ICAO Special Provision A67.
- UL-recognized component.
- Can be mounted in any orientation.
- Computer designed lead, calcium tin alloy grid for high power density.
- Long service life, float or cyclic applications.
- Maintenance-free operation.
- Low self discharge.

### SPECIFICATION

|                        |       |           |
|------------------------|-------|-----------|
| Nominal voltage        | ..... | 12V       |
| Number of cell         | ..... | 6         |
| Length(mm/inch)        | ..... | 197/7.76  |
| Width(mm/inch)         | ..... | 165/6.5   |
| Height(mm/inch)        | ..... | 170/6.69  |
| Total Height(mm/inch)  | ..... | 170/6.69  |
| Approx. Weight(kg/lbs) | ..... | 14.2/31.3 |



Terminal (F11)



### Performance Characteristics

|                                                 |                                                      |        |
|-------------------------------------------------|------------------------------------------------------|--------|
| Capacity<br>77°F(25°C)                          | 20 hour rate (2.5A、10.5V)                            | 50Ah   |
|                                                 | 10 hour rate (4.6A、10.5V)                            | 46Ah   |
|                                                 | 5 hour rate (8.15A、10.5V)                            | 40.8Ah |
|                                                 | 1 hour rate (29.3A、10.02V)                           | 29.3Ah |
| Internal Resistance                             | Full charged Battery 77°F(25°C): 9mΩ                 |        |
| Capacity affected by Temperature (10 hour rate) | 104° F(40°C)                                         | 103%   |
|                                                 | 77° F(25°C)                                          | 100%   |
|                                                 | 32° F(10°C)                                          | 86%    |
|                                                 | 5° F(-15°C)                                          | 65%    |
| Self-Discharge<br>68°F(20°C)                    | Capacity after 3 month storage                       | 90%    |
|                                                 | Capacity after 6 month storage                       | 80%    |
|                                                 | Capacity after 12 month storage                      | 60%    |
| Max. discharge current 77°F(25°C): 460A(5S)     |                                                      |        |
| Charge (Constant Voltage)                       | Float: 13.6~13.8 V/77° F(25°C)                       |        |
|                                                 | Cycle: 14.4~14.7 V/77°F(25°C)<br>Max. Current: 13.8A |        |

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

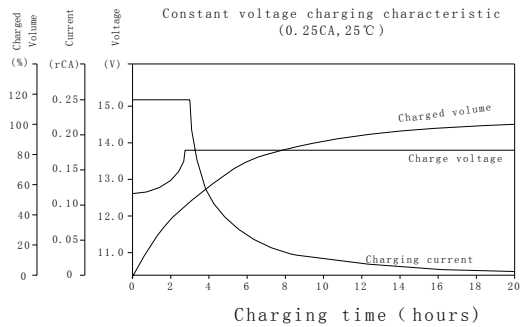
| End Point Volts/Cell | 5min | 10min | 15min | 30min | 1h   | 3h   | 5h   | 10h  | 20h  |
|----------------------|------|-------|-------|-------|------|------|------|------|------|
| 1.60V                | 143  | 102   | 80.5  | 49.0  | 30.7 | 13.3 | 8.70 | 4.81 | 2.60 |
| 1.67V                | 129  | 94.3  | 75.1  | 46.4  | 29.3 | 12.8 | 8.44 | 4.71 | 2.20 |
| 1.70V                | 124  | 90.9  | 72.8  | 45.2  | 28.7 | 12.6 | 8.34 | 4.67 | 2.53 |
| 1.75V                | 114  | 85.3  | 68.9  | 43.3  | 27.6 | 12.3 | 6.80 | 4.60 | 2.50 |
| 1.80V                | 105  | 79.5  | 65.1  | 41.5  | 26.7 | 11.9 | 7.97 | 4.53 | 2.47 |

Discharge Constant Power (watts at 77° F25°C)

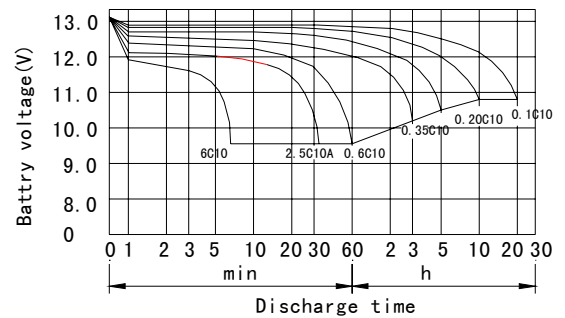
| End Point Volts/Cell | 5min | 10min | 15min | 30min | 45min | 1h   | 2h   | 3h   | 5h   |
|----------------------|------|-------|-------|-------|-------|------|------|------|------|
| 1.60V                | 250  | 182   | 146   | 90.6  | 67.6  | 57.6 | 34.2 | 25.5 | 16.9 |
| 1.67V                | 233  | 172   | 140   | 86.9  | 65.0  | 55.4 | 33.0 | 24.7 | 16.4 |
| 1.70V                | 225  | 168   | 135   | 85.2  | 63.9  | 54.5 | 32.6 | 24.4 | 16.3 |
| 1.75V                | 211  | 159   | 129.6 | 82.3  | 62.0  | 53.0 | 31.8 | 23.8 | 15.9 |
| 1.80V                | 197  | 150   | 123.8 | 79.4  | 60.1  | 51.5 | 31.0 | 23.3 | 15.6 |

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

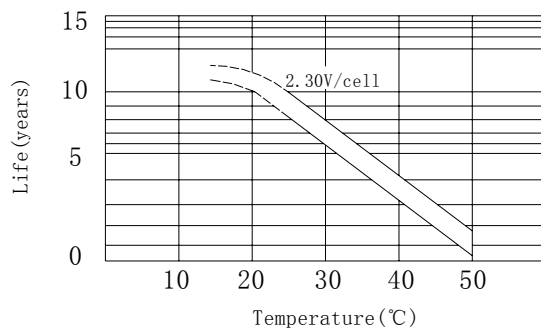
### charge characteristic curve



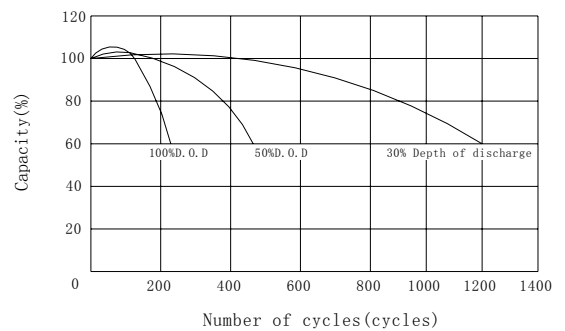
### Discharge characteristic (25°C)



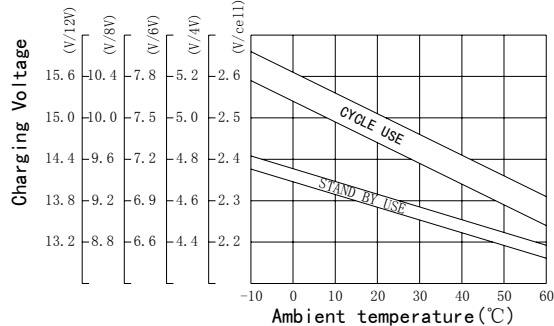
### Temperature effects on float life



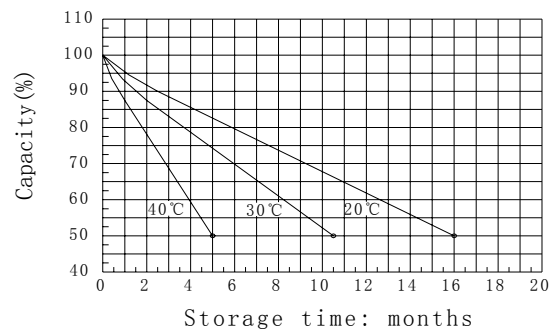
### Cycle service life in relation to depth of discharge



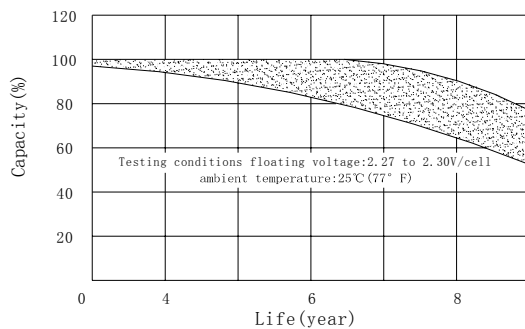
### Relationship between charging voltage and temperature



### Self-discharge characteristic



### Life characteristics of standby use



### Temperature effects on capacity

