

### MHB MS Series--Small-size batteries

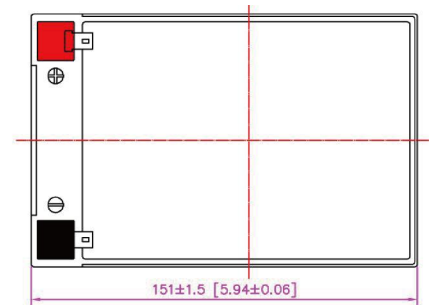
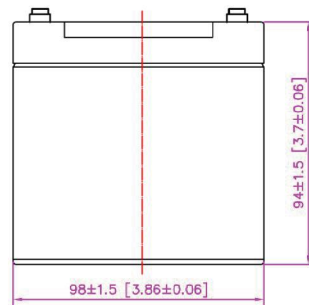
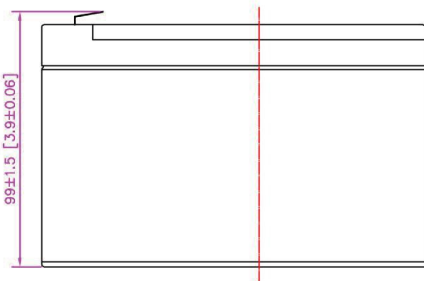
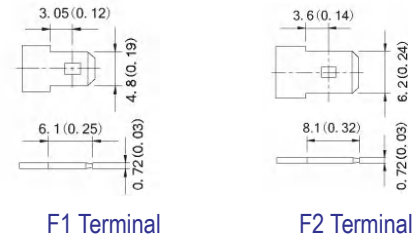
- 100% before shipment testing, stable and reliable long-term quality
- patented grid alloy formula and updated manufacturing technique
- completely sealed and maintenance-free, low self-discharge
- Excellent charging and re-charging acceptance
- Cycle use: More than 260 cycles at 100% DOD
- Floating & standby use: 3-5 years

### Application:

- Alarm System
- Cable Television
- Communication Equipment
- Emergency Power System
- Security System
- Medical Equipment
- UPS
- Power tools
- Control Equipment
- Toys

### Construction:

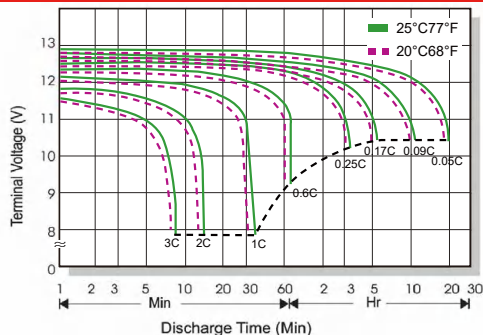
- Component .....Raw material
- Positive .....Lead dioxide
- Negative .....Lead
- Container .....ABS
- Cover .....ABS
- Sealant .....Epoxy
- Safety valve .... Rubber
- Terminal .....Copper
- Separator .....Fiber glass
- Electrolyte .....Sulfuric acid



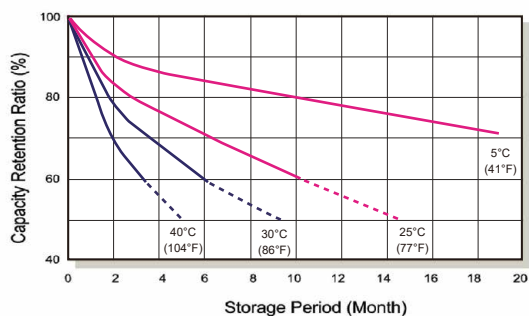
### Speification:

| Battery Model                    | MS 12-12 12V12AH                            |                    |                       |                   |
|----------------------------------|---|--------------------|-----------------------|-------------------|
| Designed Floating Life           | 3~5 Years                                   |                    |                       |                   |
| Capacity (25°C)                  | 20HR(0.600A,10.5V)                          | 10HR(1.089A,10.5V) | 5HR(1.980A,10.5V)     | 1HR(6.120A,10.5V) |
|                                  | 12.00 AH                                    | 10.89 AH           | 9.90 AH               | 6.12 AH           |
| Dimensions                       | Length                                      | Width              | Height                | Total Height      |
|                                  | 151 mm                                      | 98 mm              | 94 mm                 | 98 mm             |
| Approx. Weight                   | 3.30Kg ±3%                                  |                    |                       |                   |
| Internal Resistance              | Full charged at 25°C : ≤20.00 mΩ            |                    |                       |                   |
| Self Discharge                   | 2% of capacity declined per month at (25°C) |                    |                       |                   |
| Capacity Affected by Temp.(20HR) | 40°C  | 25°C               | 0°C                   | -15°C             |
|                                  | 102%  | 100%               | 85%                   | 65%               |
| Charge Voltage(25oC)             | Cycle use                                   |                    | Float use             |                   |
|                                  | 14.4-15.0V(-30mV/°C), max. Current: 3.00A   |                    | 13.5-13.8V (-20mV/°C) |                   |

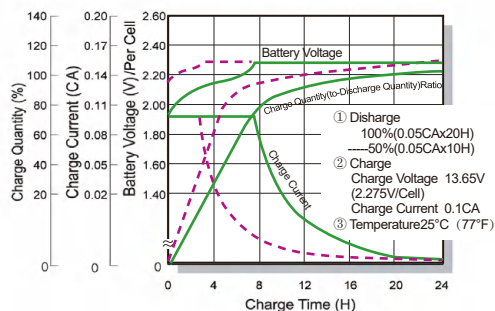
### Terminal Voltage (V) and Discharge Time



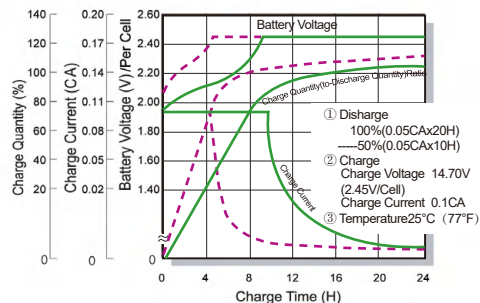
### Capacity Retention Characteristic



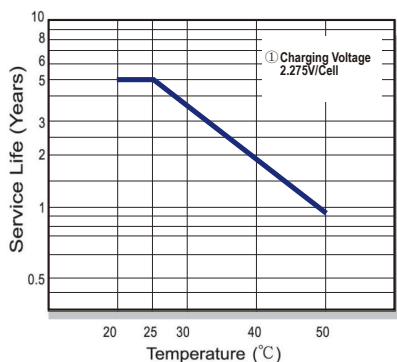
### Battery Voltage and Charge Time for Standby Use



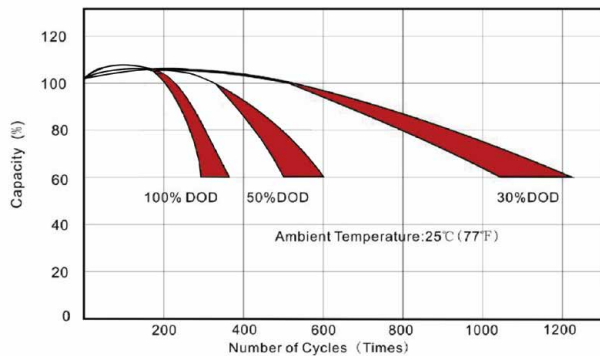
### Battery Voltage and Charge Time for Cycle Use



### Tickle(or Float) Service Life



### Cycle Service Life



### Constant Current Discharge(CC,Unit:A) at 25°C(77°F)

| F.V/Time   | 5Min  | 10Min | 15Min | 30Min | 1Hr   | 2Hr   | 3Hr   | 4Hr   | 5Hr   | 6Hr   | 10Hr  | 20Hr  |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1.80V/Cell | 36.08 | 24.72 | 17.30 | 10.98 | 6.007 | 3.749 | 2.915 | 2.292 | 1.943 | 1.298 | 1.068 | 0.589 |
| 1.75V/Cell | 36.76 | 25.19 | 17.62 | 11.19 | 6.120 | 3.819 | 2.969 | 2.335 | 1.980 | 1.323 | 1.089 | 0.600 |
| 1.70V/Cell | 37.86 | 25.94 | 18.15 | 11.52 | 6.304 | 3.934 | 3.058 | 2.406 | 2.039 | 1.362 | 1.121 | 0.611 |
| 1.67V/Cell | 38.97 | 26.70 | 18.68 | 11.86 | 6.487 | 4.049 | 3.148 | 2.476 | 2.098 | 1.402 | 1.154 | 0.624 |
| 1.60V/Cell | 40.07 | 27.45 | 19.21 | 12.20 | 6.671 | 4.163 | 3.237 | 2.546 | 2.158 | 1.442 | 1.186 | 0.642 |

### Constant Power Discharge (CP,Unit:W) at 25°C(77°F)

| F.V/Time   | 5Min  | 10Min | 15Min | 30Min | 1Hr   | 2Hr  | 3Hr  | 4Hr  | 5Hr  | 6Hr  | 10Hr | 20Hr |
|------------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| 1.80V/Cell | 70.37 | 48.21 | 33.74 | 21.42 | 11.71 | 7.31 | 5.68 | 4.47 | 3.79 | 2.53 | 2.08 | 1.15 |
| 1.75V/Cell | 71.68 | 49.12 | 34.37 | 21.82 | 11.93 | 7.45 | 5.79 | 4.55 | 3.86 | 2.58 | 2.12 | 1.17 |
| 1.70V/Cell | 73.83 | 50.59 | 35.40 | 22.47 | 12.29 | 7.67 | 5.96 | 4.69 | 3.98 | 2.66 | 2.19 | 1.19 |
| 1.67V/Cell | 75.99 | 52.06 | 36.43 | 23.13 | 12.65 | 7.89 | 6.14 | 4.83 | 4.09 | 2.73 | 2.25 | 1.22 |
| 1.60V/Cell | 78.14 | 53.54 | 37.46 | 23.78 | 13.01 | 8.12 | 6.31 | 4.96 | 4.21 | 2.81 | 2.31 | 1.25 |