

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

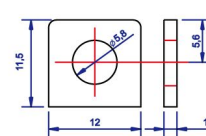
- 100% before shipment testing, stable and reliable long-term quality
- patented grid alloy formula and updated manufacturing technique
- completely sealed and maintenance-free, low self-discharge
- Excellent charging and re-charging acceptance
- Cycle use: More than 260 cycles at 100% DOD
- Floating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

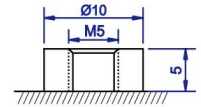
#### Construction:

- 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



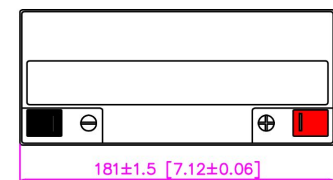
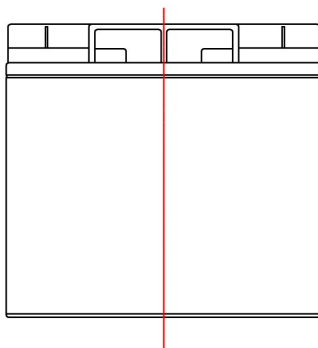
M5 Bolt & Nut

T1 Terminal



M5 Bolt

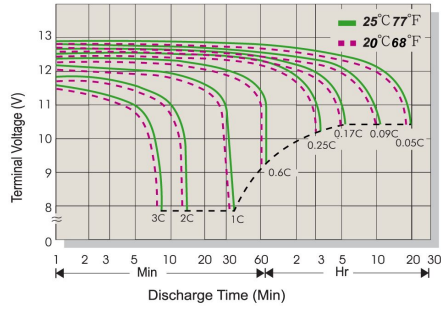
B1 Terminal



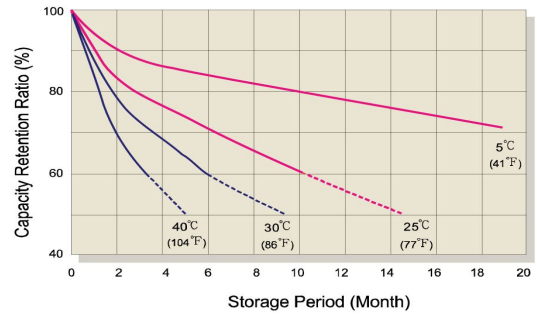
#### Speification:

Battery Model	MS 20-12 12V20AH			
Designed Floating Life	3~5 Years			
Capacity (25°C)	20HR(1.000A,10.5V)	10HR(1.894A,10.5V)	5HR(3.399A,10.5V)	1HR(11.58A,10.5V)
	20.00 AH	18.94 AH	17.00 AH	11.58 AH
Dimensions	Length	Width	Height	Total Height
	181 mm	77 mm	167 mm	167 mm
Approx. Weight	5.50Kg ±3%			
Internal Resistance	Full charged at 25°C : ≤16.00 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:5.00A		13.5-13.8V (-20mV/°C)	

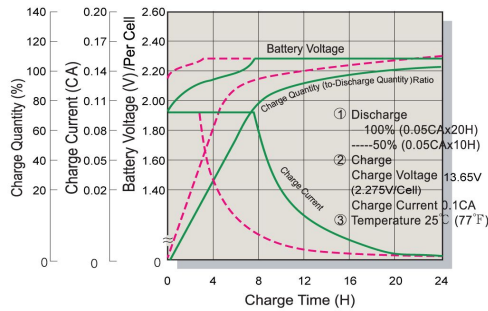
### Terminal Voltage (V) and Discharge Time



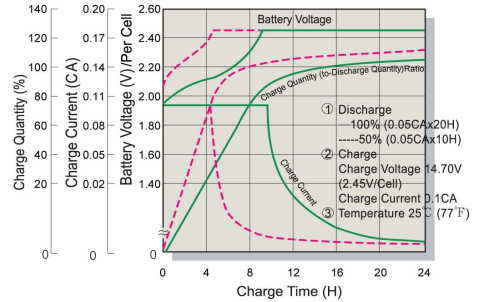
### Capacity Retention Characteristic



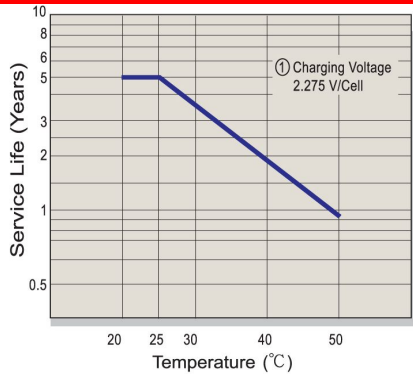
### Battery Voltage and Charge Time for Standby Use



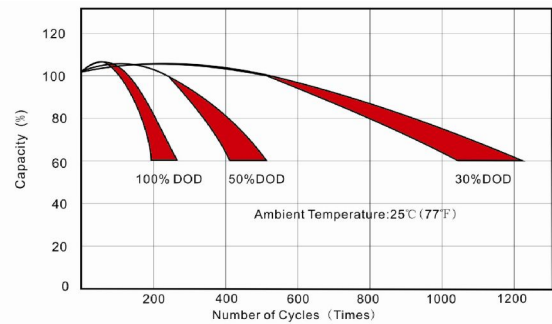
### Battery Voltage and Charge Time for Cycle Use



### 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	65.05	44.90	31.09	19.29	11.37	6.64	5.05	4.017	3.337	2.851	1.859	0.982
1.75V/Cell	66.27	45.74	31.67	19.65	11.58	6.77	5.15	4.092	3.399	2.904	1.894	1.000
1.70V/Cell	68.26	47.11	33.57	20.43	11.78	6.88	5.24	4.164	3.459	2.955	1.928	1.018
1.67V/Cell	70.24	48.48	36.43	21.57	11.91	6.96	5.30	4.209	3.496	2.987	1.948	1.029
1.60V/Cell	72.23	49.86	38.33	22.50	12.04	7.03	5.35	4.254	3.534	3.019	1.969	1.040

### 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	126.8	87.55	60.63	37.61	22.17	12.95	9.86	7.83	6.51	5.56	3.63	1.91
1.75V/Cell	129.2	89.19	61.76	38.31	22.58	13.19	10.04	7.98	6.63	5.66	3.69	1.95
1.70V/Cell	133.1	91.87	65.47	39.84	22.98	13.43	10.22	8.12	6.75	5.76	3.76	1.98
1.67V/Cell	137.0	94.54	71.03	42.07	23.22	13.57	10.33	8.21	6.82	5.82	3.80	2.01
1.60V/Cell	140.9	97.22	74.73	43.87	23.48	13.72	10.44	8.30	6.89	5.89	3.84	2.03