

MHB MS Series--Small-size batteries

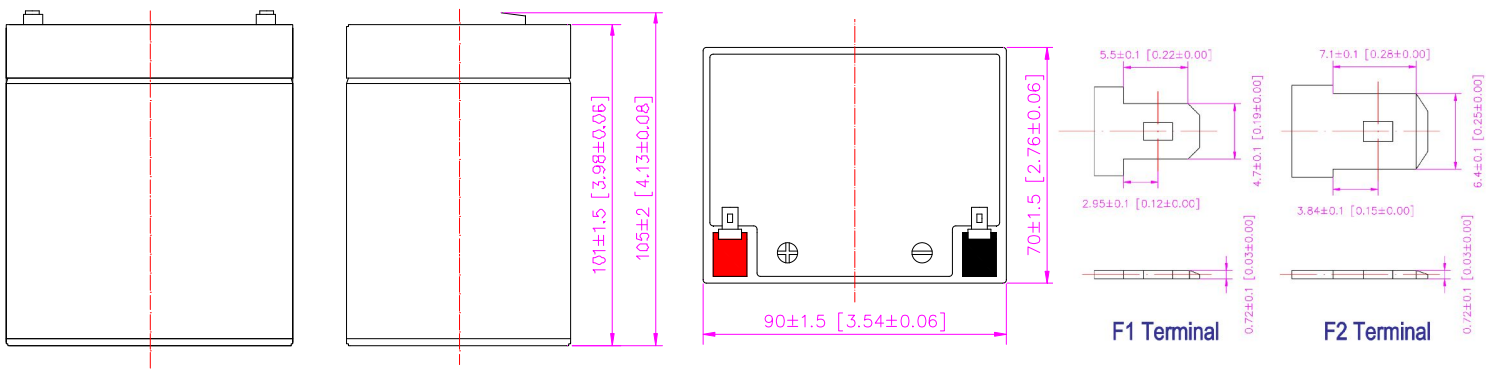
- 100% before shipment testing, stable and reliable long-term quality
- patented grid alloy formula and updated manufacturing technique
- completely sealed and maintenance-free, low self-discharge
- Excellent charging and re-charging acceptance
- Cycle use: More than 260 cycles at 100% DOD
- Floating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

- ComponentRaw material
- PositiveLead dioxide
- NegativeLead
- ContainerABS
- CoverABS
- SealantEpoxy
- Safety valve Rubber
- TerminalCopper
- SeparatorFiber glass
- ElectrolyteSulfuric acid

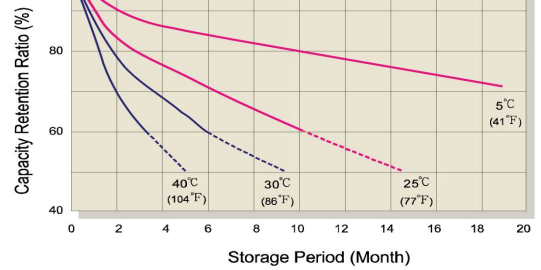


Speification:

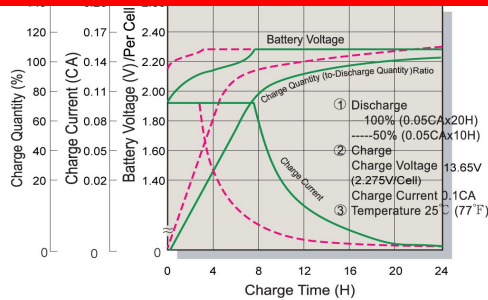
Battery Model	MS 4.5-12 12V4.5AH			
Designed Floating Life	3~5 Years			
Capacity (25°C)	20HR(0.225A,10.5V)	10HR(0.433A,10.5V)	5HR(0.81A,10.5V)	1HR(2.70A,10.5V)
	4.50AH	4.33AH	4.05AH	2.70AH
Dimensions	Length	Width	Height	Total Height
	90mm (3.54inch)	70mm (2.76inch)	101mm (3.98inch)	105mm (4.13inch)
Approx. Weight	1.46Kg (3.22 lbs) ±5%			
Internal Resistance	Full charged at 25°C : ≤39mΩ			
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(25°C)	Cycle use		Float use	
	14.4-14.7V(-30mV/°C), max. Current: 1.35A		13.5-13.8V (-20mV/°C)	

Terminal Voltage (V) and Discharge Time

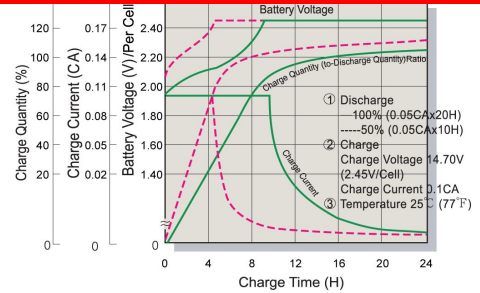
Capacity Retention Characteristic



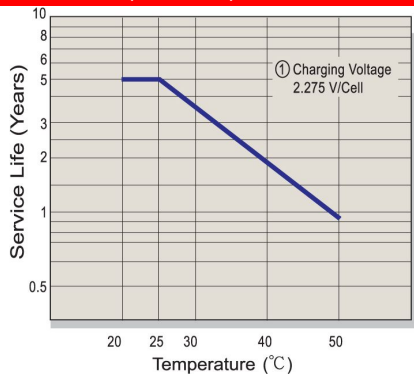
Battery Voltage and Charge Time for Standby Use



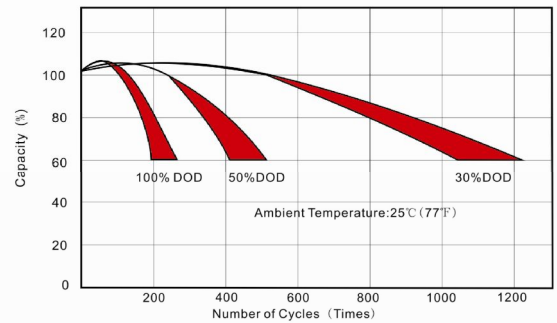
Battery Voltage and Charge Time for Cycle Use



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
1.85V/Cell	12.84	9.60	7.08	4.47	2.60	1.49	1.14	0.909	0.780	0.636	0.417	0.217
1.80V/Cell	13.09	9.78	7.22	4.56	2.65	1.52	1.16	0.926	0.795	0.648	0.425	0.221
1.75V/Cell	13.34	9.97	7.35	4.65	2.70	1.54	1.18	0.943	0.810	0.660	0.433	0.225
1.70V/Cell	14.54	10.57	7.79	4.83	2.74	1.57	1.20	0.960	0.824	0.672	0.441	0.229
1.67V/Cell	16.00	11.46	8.45	5.10	2.77	1.59	1.21	0.970	0.833	0.679	0.445	0.231
1.60V/Cell	17.34	12.06	8.90	5.32	2.80	1.61	1.23	0.981	0.842	0.686	0.450	0.234

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
1.85V/Cell	25.05	18.72	13.81	8.73	5.06	2.90	2.22	1.77	1.52	1.24	0.81	0.42
1.80V/Cell	25.53	19.08	14.07	8.89	5.16	2.96	2.26	1.81	1.55	1.26	0.83	0.43
1.75V/Cell	26.00	19.44	14.34	9.06	5.26	3.01	2.30	1.84	1.58	1.29	0.84	0.44
1.70V/Cell	28.34	20.60	15.20	9.42	5.35	3.07	2.34	1.87	1.61	1.31	0.86	0.45
1.67V/Cell	31.20	22.35	16.49	9.95	5.41	3.10	2.37	1.89	1.62	1.32	0.87	0.45
1.60V/Cell	33.81	23.52	17.35	10.37	5.46	3.13	2.39	1.91	1.64	1.34	0.88	0.46