

Minhua MR Series Front Terminal Maintenance-free Battery

- The grid is made of special high tin alloy, which makes the grid have superior corrosion resistance.
- The unique lead paste formula and high temperature curing process makes the battery have good charging acceptance and high rate discharge performance.
- The design of terminal in the front, saving installation space, making installation more convenient.
- 100% precision capacity inspection before shipments, with excellent consistency
- The designed service life is more than 10 years in the float charging mode

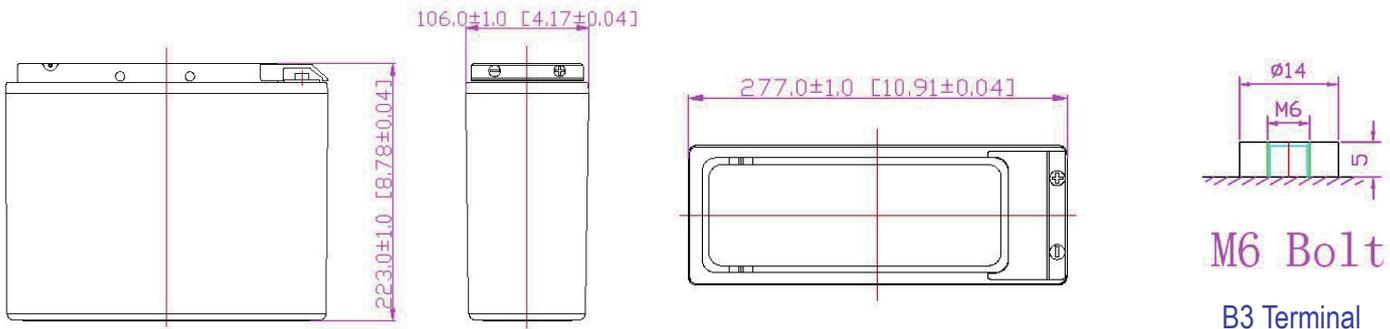
Application Area:

- Automatic alarm system
- Electrical automatic control system
- Uninterrupted power system
- Photovoltaic energy storage system
- General uninterruptible power system
- Centralized large-scale power system
- Distributed small-scale power system
- Financial system uninterruptible power system

Material:

- Component.....material
- Positive plate...Lead dioxide
- Negative plate..Spongy lead
- Battery case.....
ABS Engineering plastics
- Sealant..... Epoxy resin
- Safety valve..... Fluorinated rubber
- Wire terminal..... Silver-plated copper
- Isolation plate..... Ultrafine glass fiber
- Electrolyte..... Analytical pure sulfuric acid

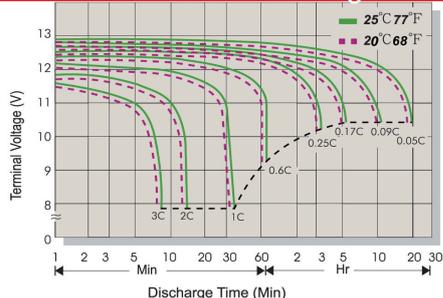
MR Series Front Terminal Maintenance-free Battery



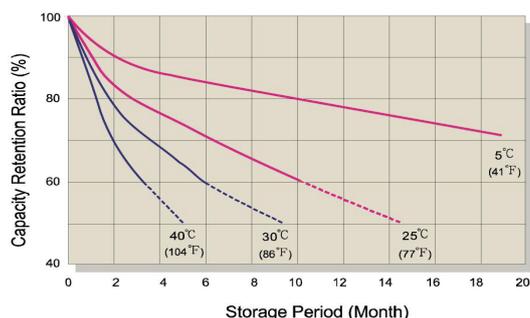
Technical Parameters:

Battery model	MR50-12 (12V50AH)			
Battery life designed	more than 10 years in the float charging mode			
Capacity designed (25°C)	20HR(2.690A,10.8V)	10HR(5.000A,10.8V)	5HR(9.000A,10.5V)	1HR(27.830A,10.5V)
	53.80AH	50.00AH	45.00AH	27.83AH
Battery size	Length	Width	Height	Total Height
	277mm	106mm	223mm	230mm
Battery weight	17.00 KG ± 3%			
Nominal internal resistance	100% charging is completed at 25 ° C environment: ≤ 7.00mΩ			
self-discharge rate	2% self-discharge rate per month, at 25°C environment			
Capacity at different temperatures (20HR)	40°C	25°C	0°C	-15°C
	102%	100%	85%	65%
Charging voltage (25°C)	Circulation mode		Floating charge mode	
	14.4-15.0V(-30mV/°C), Max Charge Current: 12.50A		13.5-13.8V(-20mV/°C)	

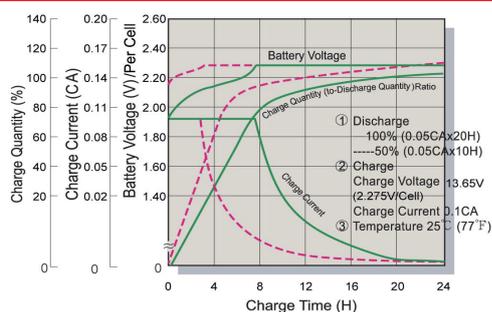
Discharge characteristics under constant current in different discharge rates



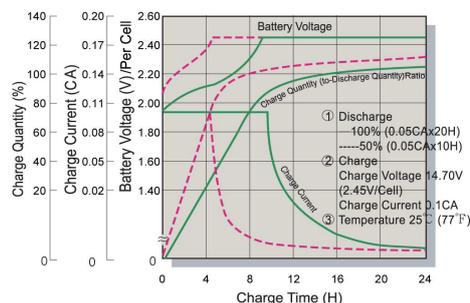
Capacity retention rate at different temperatures



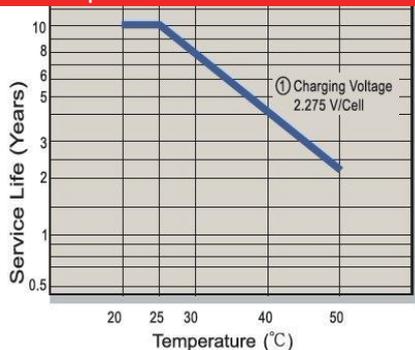
Correlation between charging time and battery voltage in floating charge mode



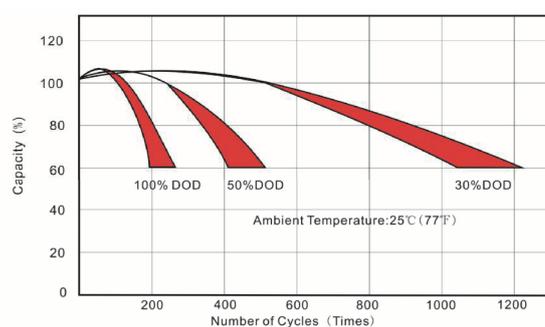
Correlation between charging time and battery voltage in cyclic mode



The life time characteristics in floating charge mode at different temperatures



Cycle life characteristics at different discharge depths



Discharge characteristics in constant current (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	161.71	113.58	79.47	45.04	27.60	17.22	13.39	10.53	8.93	5.96	5.00	2.69
1.75V/Cell	163.08	114.54	80.15	45.42	27.83	17.37	13.50	10.62	9.00	6.01	5.08	2.73
1.70V/Cell	167.16	117.41	82.15	46.56	28.53	17.80	13.84	10.89	9.23	6.16	5.15	2.77
1.67V/Cell	171.23	120.27	84.15	47.69	29.22	18.24	14.18	11.15	9.45	6.32	5.23	2.81
1.60V/Cell	178.86	125.62	87.90	49.82	30.52	19.05	14.81	11.65	9.87	6.60	5.30	2.85

Discharge characteristics in constant power (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	315.33	221.48	154.97	87.83	53.81	33.58	26.11	20.54	17.41	11.63	9.75	5.24
1.75V/Cell	318.00	223.36	156.29	88.57	54.27	33.87	26.33	20.71	17.55	11.73	9.90	5.32
1.70V/Cell	325.95	228.94	160.19	90.79	55.63	34.72	26.99	21.23	17.99	12.02	10.04	5.40
1.67V/Cell	333.90	234.53	164.10	93.00	56.98	35.56	27.65	21.75	18.43	12.31	10.19	5.48
1.60V/Cell	348.77	244.97	171.41	97.14	59.52	37.15	28.88	22.71	19.25	12.86	10.34	5.56