

# LEAD ACID (DEEP CYCLE) BATTERY

## MG200-12

Marvel MG (Deep Cycle GEL ) series is hybridGEL battery with 12 years floating designlife ,it is ideal for standby or frequent cyclicdischarge applications under extremeenvironments. By using strong grids, highpurity lead and patented Gel electrolyte,the DG-MG series offers excellent recoverycapability after deep discharge underfrequent cyclic discharge use, and candeliver 450 cycles at 100% DOD. Suitablefor solar & wind system, CATV, marine,RV and deep discharge UPS, and telecommunication, etc.



MADE IN VIETNAM / CHINA



OHSAS 18001



ISO 14001

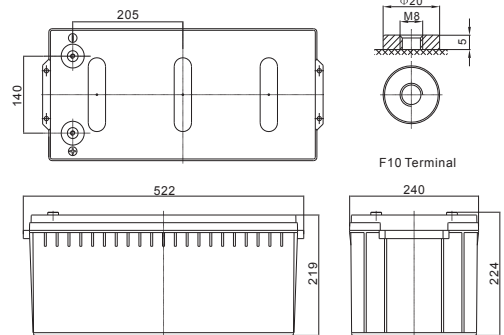


ISO 9001

### SPECIFICATION

Cells Per Unit	6
Voltage Per Unit	12
Capacity °C	200Ah@20hr-rate to 1.75V per cell @25°C
Weight	Approx. 59.0 Kg (Tolerance±3.0%)
Length	522±2mm (20.6 inches)
Width	240±2mm (9.45 inches)
Height	219±2mm (8.62 inches)
Total Height	224±2mm (8.82 inches)
Internal Resistance	Approx. 3.5 mΩ
Terminal	F10(M8)/F16(M8)
Max. Discharge Current	2000A (5 sec)
Design Life	12 years (floating charge)
Maximum Charging Current	60.0 A
Reference Capacity	C3 147.3AH C5 167.0AH C10 190.0AH C20 200.0AH
Float Charging Voltage	13.6 V~13.8 V @ 25°C Temperature Compensation: -3mV/°C/Cell
Cycle Use Voltage	Temperature Compensation: -4mV/°C/Cell
Operating Temperature Range	Discharge: -20°C~60°C Charge: 0°C~50°C Storage: -20°C~60°C
Normal Operating Temperature Range	25°C±5°C
Self Discharge	Marvel Valve Regulated Lead Acid (VRLA) batteries can be stored for up to 6 months at 25°C and then recharging is recommended. Monthly Self-discharge ratio is less than 3% at 25°C.Please charged batteries before using.
Container Material	A.B.S. UL94-HB, UL94-V0 Optional.

### Dimensions



Length	522±2mm (20.6 inches)
Width	240±2mm (9.45 inches)
Height	219±2mm (8.62 inches)
Total Height	224±2mm (8.82 inches)
Terminal	Value
M5	6~7 N*m
M6	8~10 N*m
M8	10~12 N*m

Unit: mm

### Constant Current Discharge Characteristics :A(25°C)

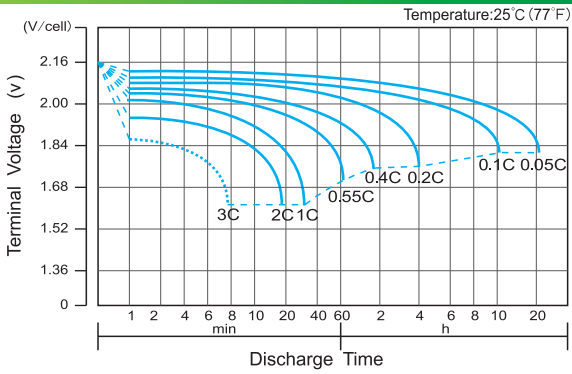
F.V/Time	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	437.1	350.7	215.6	121.5	72.34	56.35	44.20	37.60	24.12	20.00	10.37
1.65V	402.6	327.9	204.3	117.3	69.92	54.62	42.88	36.42	23.93	19.81	10.31
1.70V	373.1	308.4	193.7	113.6	68.05	52.31	41.56	35.43	23.55	19.43	10.18
1.75V	342.3	288.9	186.0	110.0	65.44	50.96	40.42	34.45	23.17	19.24	10.00
1.80V	311.5	264.5	179.2	105.1	63.20	50.00	39.48	34.00	22.79	19.05	9.903
1.85V	243.8	218.9	151.9	93.83	57.80	46.54	37.02	31.30	21.46	17.90	9.811

### Constant Power Discharge Characteristics : WPC(25°C)

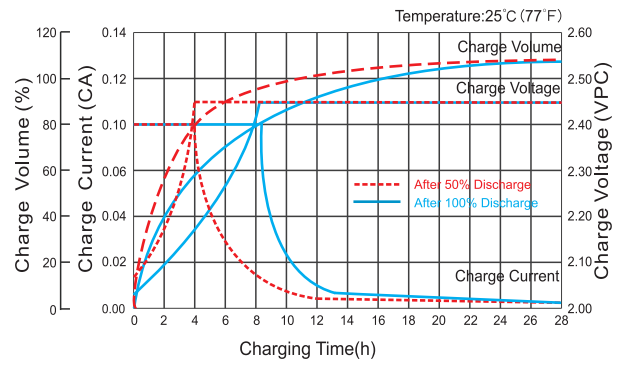
F.V/Time	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	744.2	611.7	391.8	228.0	136.8	107.0	85.19	71.17	47.00	39.22	20.69
1.65V	716.6	594.8	382.6	224.1	133.1	104.3	83.11	69.24	46.62	38.85	20.51
1.70V	668.8	563.0	364.2	217.6	129.8	100.3	80.47	67.51	46.06	38.09	20.32
1.75V	622.4	531.4	351.5	211.5	125.1	97.86	78.58	65.97	45.30	37.71	19.95
1.80V	573.4	491.2	340.1	202.9	122.3	97.31	77.07	65.09	44.55	37.34	19.77
1.85V	454.9	412.7	291.7	182.2	112.6	90.77	72.53	60.20	42.11	35.26	19.58

(Note) The above characteristics data are average values obtained within three charge/discharge cycle not the minimum values. The battery must be fully charged before the capacity test. The Cm should reach 95% after the first cycle and 100% after the third cycle.

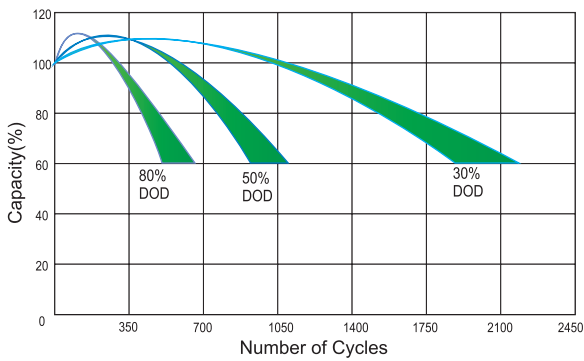
### Discharge Characteristics Curve



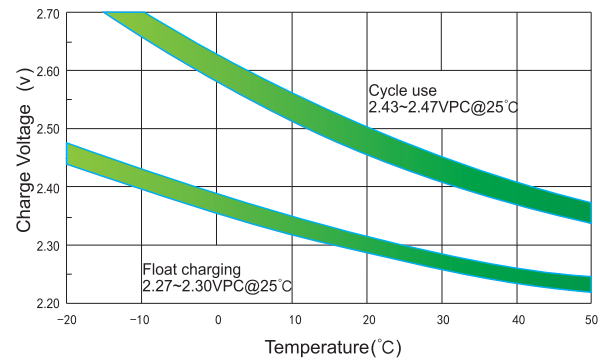
### Charge Characteristic Curve for Cycle Use(IU)



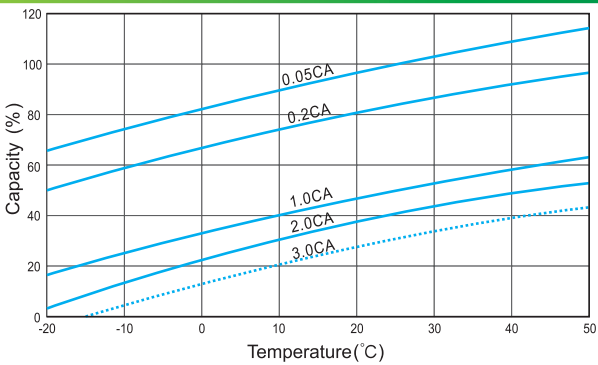
### Cycle Life in Relation to Depth of Discharge



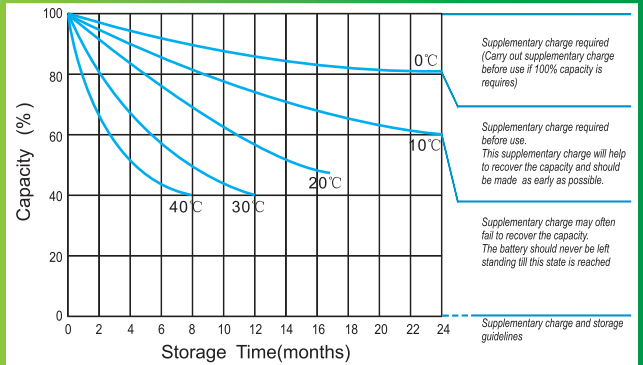
### Relationship Between Charging Voltage and Temperature



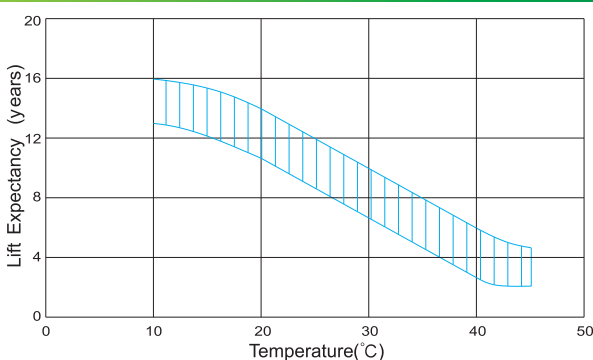
### Temperature Effects on Capacity



### Storage Characteristics



### Effect of Temperature on Long Term Life



### Relationship of OCV And State of Charge(20°C)

