

General features for MPG (GEL) battery

- * Nanometer SiO₂ and H₂SO₄ gelled electrolyte technology for gas recombination of up to 99% and freedom from electrolyte maintenance or water adding.
- * Computer designed lead, calcium tin alloy grid for high power density.
- * Not restricted for air transport-complies with IATA/ICAO Special Provision A67.UL-recognized component.
- * Long service life, float or cyclic applications, specially suitable for motive power applications, such as golf trailer, sruubber, folklift, etc.
- * Maintenance-free operation. Lower self discharge.
- * Case and cover available in both standard and flame retardant ABS.
- * The design life to 12V GEL battery is 15years, the deep discharge cycles increased over 50% as compared with the AGM battery.



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MPG12-90 (12V90Ah)

Specifications

Nominal Voltage		12V	
Rated capacity (20hour rate)		90 Ah	
Dimensions (±2mm)	Total Height	T16	216 mm (8.50 inches)
		T10	234 mm (9.21 inches)
	Height	211 mm (8.30 inches)	
	Length	307 mm (12.1 inches)	
Width		169 mm (6.65 inches)	
Weight Approx (±3%)		29.0 Kg (63.9 lbs)	

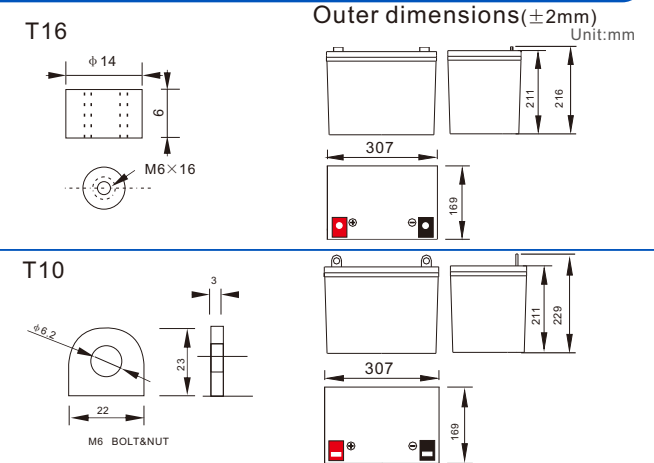
Battery picture and construction



Battery Construction

Component	Positive plate	Negative plate	Container	Cover
Raw material	Lead dioxide	Lead	ABS	ABS
Component	Electrolyte	Separator	Safety valve	Terminal
Raw material	Gelled acid	PVC	Rubber	Copper

Outer dimension and terminal



Characteristics

Capacity 25°C(77°F)	20 hour rate(4.5 A, 10.5V)	90Ah
	10 hour rate(8.4A, 10.5V)	84Ah
	5 hour rate(14.4A, 10.5V)	72Ah
	1 hour rate(54A, 9.6V)	54Ah
Internal Resistance	Full charged battery at 25°C(77°F)	Approx 5.5mΩ
Capacity affected by Temperature (20hour rate)	40°C (104°F)	102%
	25°C (77°F)	100%
	0°C (32°F)	85%
Remaining capacity Self-Discharge At 25°C(77°F)	-15°C (5°F)	65%
	Capacity after 3 month storage	91%
	Capacity after 6 month storage	82%
	Capacity after 12 month storage	64%
Terminal type	T16 (Option T10)	
Max. Discharge current 25°C/(77°F)	830A (5Seconds)	
Nominal operating temperature	25°C ±5°C(77°F ±9°F)	
Operating Temperature Range	Discharge	-20°C ~55°C (-4°F ~131°F)
	Charge	-10°C ~55°C (14°F ~131°F)
	Storage	-20°C ~55°C (-4°F ~131°F)
Charge methods (constant Voltage) At 25°C(77°F)	Cycle use	Initial Charging Current less than 22.5 A Voltage 14.5-15.0V Temperature compensation:-20mV/°C
	Standby use	Voltage 13.5-13.8V Temperature compensation:-30mV/°C

Constant current discharge (25°C , 77 °F)

Constant power discharge (25°C , 77 °F)

Unit:A

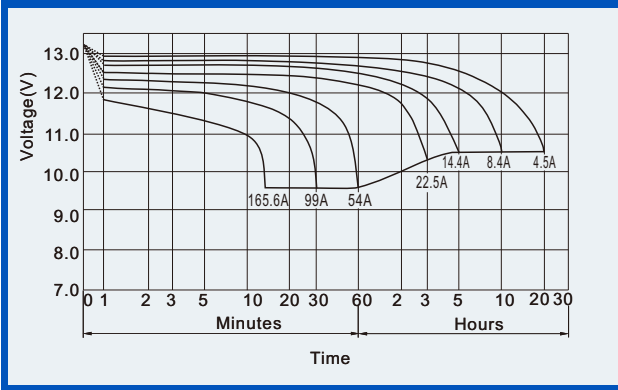
Unit:watts

Constant Current(Amp) and Constant Power(Watt) Discharge Table											
Time		10min	30min	1h	2h	3h	4h	5h	8h	10h	20h
9.60V	A	180.0	99.0	54.0	31.5	23.2	18.0	14.9	10.3	8.6	4.7
	W	1908	1054	578	340	253	198	163.8	113.9	94.9	52.4
10.20V	A	171.0	99.9	50.8	30.1	22.5	17.6	14.6	10.2	8.5	4.5
	W	1881	1104	563	337	254	199	166	115	96	52
10.50V	A	162.0	91.8	49.5	29.3	22.0	17.3	14.4	10.0	8.4	4.5
	W	1814	1033	559	334	251	199	166	115	96	52
10.80V	A	153.0	84.6	47.7	28.6	21.4	17.0	14.0	9.8	8.3	4.4
	W	1737	964	546	331	248	198	164	114	96	51
11.10V	A	144.0	75.6	45.0	27.9	20.7	16.5	13.7	9.5	7.9	4.3
	W	1656	873	522	326	243	195	161	113	93	50

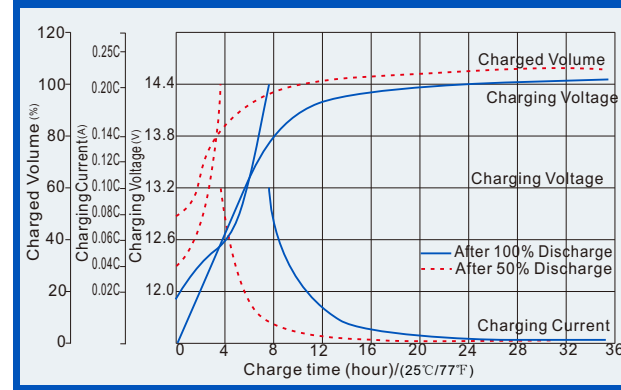
(Above characteristics data are average values obtained within three charge/discharge cycles, not the minimum values.)

GEL Battery (GEL technology) Maintenance-free Sealed Lead Gel Rechargeable Battery

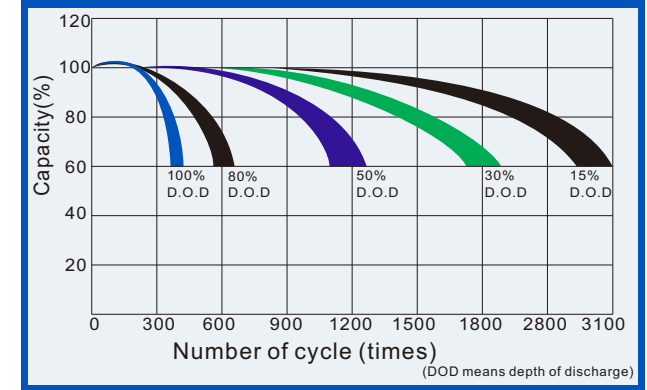
Discharge characteristics (25°C, 77°F)



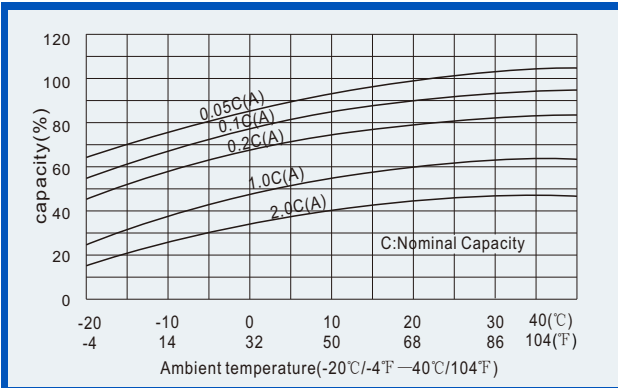
Charge characteristics (25°C, 77°F)



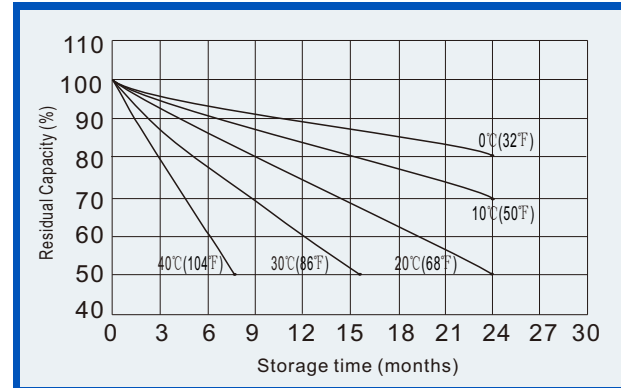
Life characteristics of Cyclic Use (25°C, 77°F)



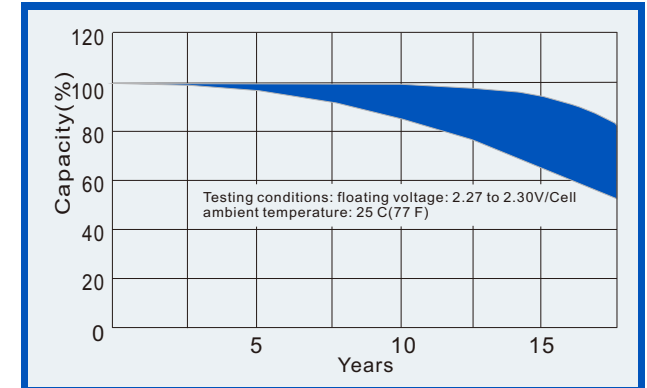
Effect of Temperature on capacity



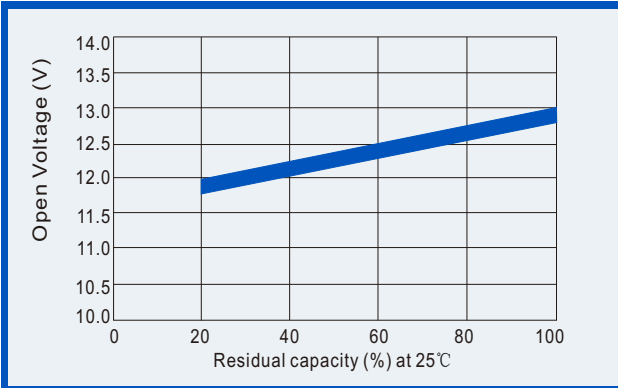
Self-discharge characteristics



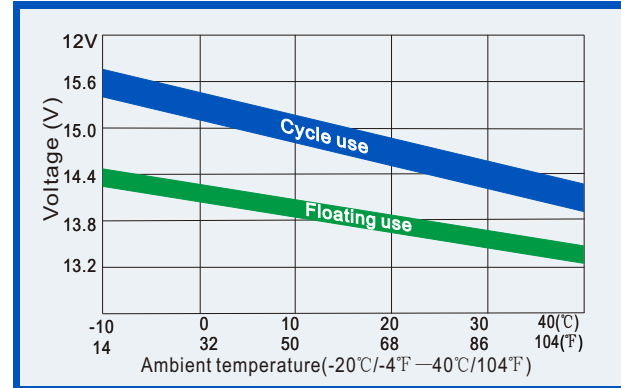
Life Characteristics of float service (25°C, 77°F)



Relationships for open voltage and remained capacity (for reference)



Relationship for charging voltage and temperature



Temperature effects on floating life

