

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 15 years, the deep discharge cycles increased over 50% as compared with the AGM battery.



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MPG12-230 (12V230Ah)

Specifications

Nominal Voltage		12V	
Rated capacity (20 hour rate)		230 Ah	
Dimensions (±2mm)	Total Height	T12	241 mm (9.45 inches)
		T19	225 mm (8.82 inches)
	Height		220 mm (8.66 inches)
	Length		520 mm (20.55 inches)
	Width		268 mm (10.55 inches)
Weight Approx (±3%)		72.0 Kg (158.7 lbs)	

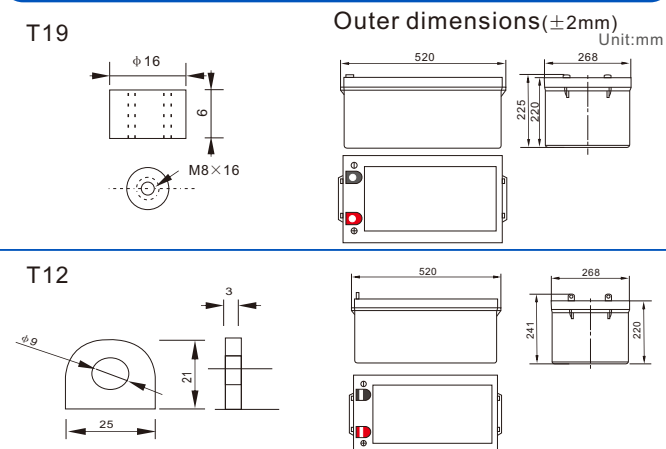
Battery picture and construction



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 (11.5 A, 10.5V) 10 hour rate (21.4A, 10.5V) 5 hour rate (36.8A, 10.5V) 1 hour rate (138A, 9.6V)	230Ah 214Ah 184Ah 138Ah
Internal Resistance	Full charged battery at 25°C (77°F)	Approx 3.5mΩ
Capacity affected by Temperature (20hour rate)	40°C (104°F) 25°C (77°F) 0°C (32°F) -15°C (5°F)	102% 100% 85% 65%
Remaining capacity Self-Discharge At 25°C (77°F)	Capacity after 3 month storage Capacity after 6 month storage Capacity after 12 month storage	91% 82% 64%
Terminal type	T19 (Option T12)	
Max. Discharge current 25°C (77°F)	1800A (5Seconds)	
Nominal operating temperature	25°C ± 5°C (77°F ± 9°F)	
Operating Temperature Range	Discharge Charge Storage	-20°C ~ 55°C (-4°F ~ 131°F) -10°C ~ 55°C (14°F ~ 131°F) -20°C ~ 55°C (-4°F ~ 131°F)
Charge methods (constant Voltage) At 25°C (77°F)	Cycle use Standby use	Initial Charging Current less than 57.5 A Voltage 14.5-15.0V Temperature compensation: -20mV/°C Voltage 13.5-13.8V Temperature compensation: -30mV/°C

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

Unit:A

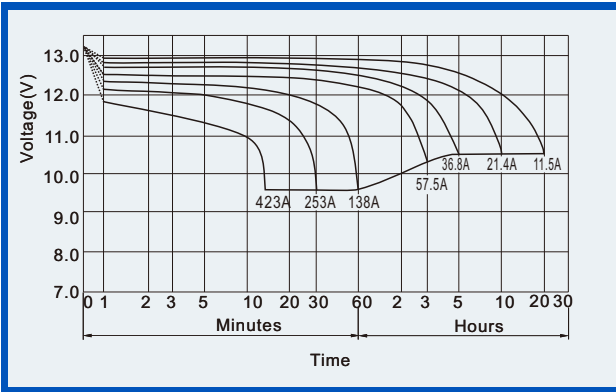
Unit:watts

Constant Current(Amp) and Constant Power(Watt) Discharge Table											
	Time	10min	30min	1h	2h	3h	4h	5h	8h	10h	20h
9.60V	A	460.0	253.0	138.0	80.5	59.3	46.0	38.0	26.2	21.9	12.0
	W	4876	2694	1477	869	647	506	418.5	291.0	242.5	134.0
10.20V	A	437.0	255.3	129.7	76.8	57.5	44.9	37.3	26.0	21.6	11.6
	W	4807	2821	1440	860	650	509	423	295	245	132
10.50V	A	414.0	234.6	126.5	75.0	56.1	44.2	36.8	25.5	21.4	11.5
	W	4637	2639	1429	855	643	508	423	294	246	132
10.80V	A	391.0	216.2	121.9	73.1	54.7	43.5	35.9	25.1	21.2	11.2
	W	4438	2465	1396	845	635	506	418	292	247	131
11.10V	A	368.0	193.2	115.0	71.3	52.9	42.2	35.0	24.4	20.1	10.9
	W	4232	2231	1334	834	622	498	413	288	237	129

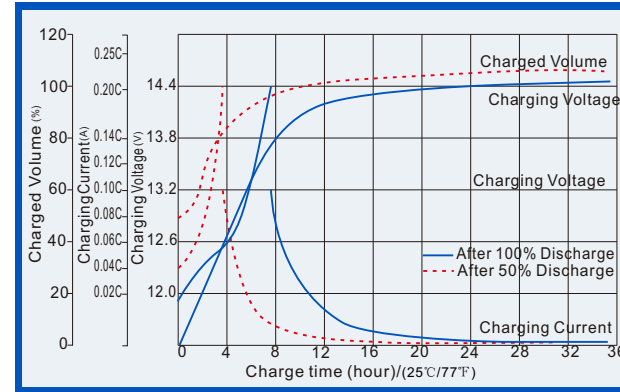
(Above characteristics data are average values obtained within three charge/discharge cycles, not the minimum values.)

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

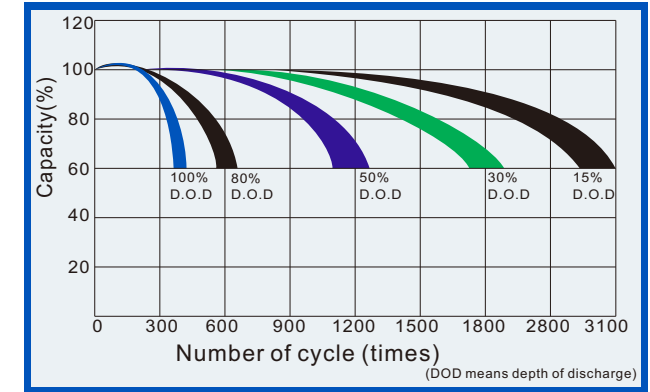
Discharge characteristics (25°C, 77°F)



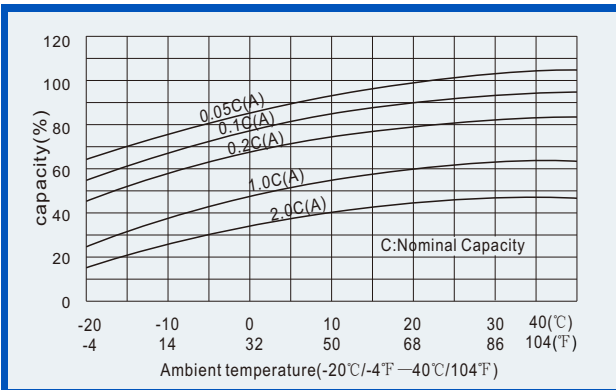
Charge characteristics (25°C, 77°F)



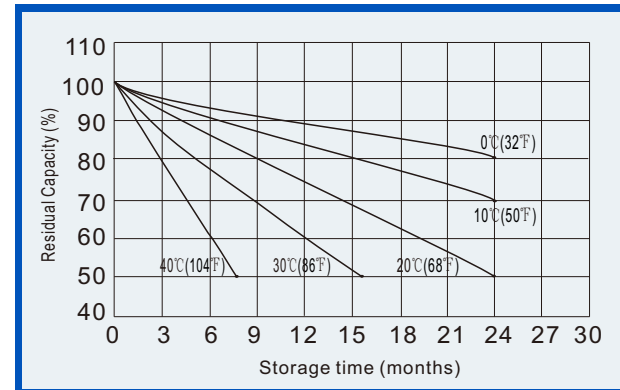
Life characteristics of Cyclic Use (25°C, 77°F)



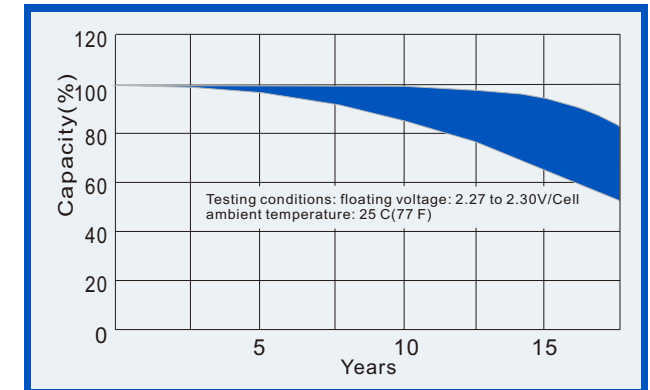
Effect of Temperature on capacity



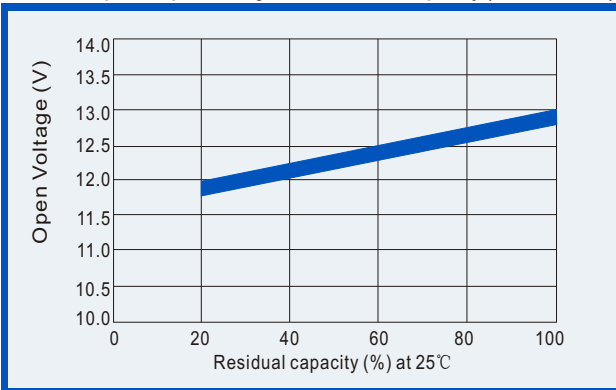
Self-discharge characteristics



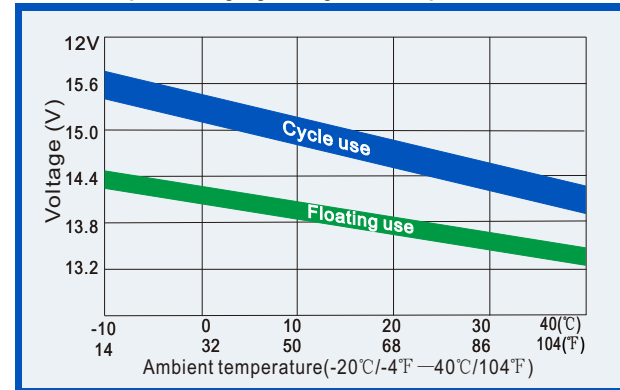
Life Characteristics of float service (25°C, 77°F)



Relationships for open voltage and remained capacity (for reference)



Relationship for charging voltage and temperature



Temperature effects on floating life

