

General features for MPHR series battery

- ★ MPHR stands for "High Rate Discharge." The series is a modern hi-tech energy application product;
- ★ Lead-calcium alloy grids and the use of high purity lead account for superior shelf-life characteristics;
- ★ Precision plate pasting for higher consistency with 100% load testing to ensure uniform capacity;
- ★ When it is used in safe surroundings, the battery is maintenance free, and you never need to add electrolyte, it can be recycled repeatedly;
- ★ High energy, high intensity, high quality output electrical energy product series.



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MPHR12-320W (12V90Ah)

Specifications

Nominal Voltage		12V
Number of cell		6 cells
Rated capacity (25°C)	Rated capacity/cell (15 minutes rate to 1.67V/cell)	320W
	Rated capacity (10 hour rate)	90Ah
Dimensions (±2mm)	Total Height	T16 216mm (8.50 inches)
		T10 234mm (9.21 inches)
	Height	211mm (8.30 inches)
	Length	307mm (12.1 inches)
	Width	169mm (6.65 inches)
Weight Approx (±3%)		29.5Kg (65.0 lbs)

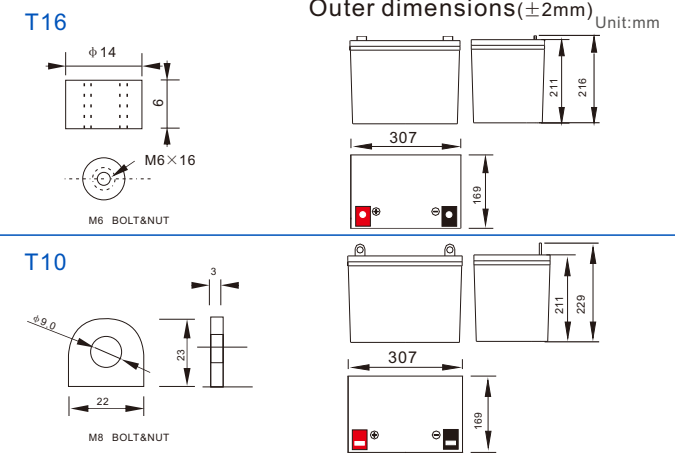
Battery picture and construction



Battery Construction

Component	Positive plate	Negative plate	Container	Cover
Raw material	Lead dioxide	Lead	ABS	ABS
Component	Electrolyte	Separator	Safety valve	Terminal
Raw material	Dilute sulfuric acid	Fiberglass	Rubber	Copper

Outer dimension and terminal



Characteristics

Capacity 25°C (77°F)	30 minutes rate (106.1A, 1.70V/cell) 15 minutes rate (179.6A, 1.67V/cell) 10 minutes rate (242A, 1.60V/cell)	1157W 1920W 2534W
Internal Resistance	Full charged battery at 25°C (77°F)	Approx 4.5mΩ
Capacity affected by Temperature (20hour rate)	40°C (104°F)	102%
	25°C (77°F)	100%
	0°C (32°F)	85%
	-15°C (5°F)	65%
Remaining capacity Self-Discharge At 25°C (77°F)	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)	800A (5Seconds)	
Nominal operating temperature	25°C ±5°C (77°F ±9°F)	
Operating Temperature Range	Discharge	-15°C ~ 50°C (5°F ~ 122°F)
	Charge	-10°C ~ 50°C (14°F ~ 122°F)
	Storage	-20°C ~ 50°C (-4°F ~ 122°F)
Charge methods (constant Voltage) At 25°C (77°F)	Cycle use	Initial Charging Current less than 22.5 A Voltage 14.50-15.00V Temperature compensation: -30mV/°C
	Standby use	Voltage 13.50-13.80V Temperature compensation: -18mV/°C

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

Unit:A

Time F.V/cell	5min	15min	30min	45min	60min	90min	5hours	10hours
1.60V	324.3	187.0	114.5	83.6	65.3	48.5	14.5	9.3
1.67V	307.1	179.6	109.8	79.4	62.5	45.9	14.2	9.2
1.70V	285.6	173.1	106.1	77.6	60.4	44.0	14.1	9.1
1.75V	264.2	162.0	98.7	71.3	55.1	41.3	13.9	9.0
1.80V	251.9	143.3	89.2	64.4	50.7	38.7	13.8	8.5
1.85V	221.1	131.2	83.2	60.4	47.6	36.7	13.5	8.3

Note:
the end voltage means Voltage per cell.
(Above characteristics data are average values obtained within three charge/discharge cycles, not the minimum values.)

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

Unit:watts

Time F.V/cell	5min	10min	15min	20min	30min	45min	60min	90min
1.60V	3388	2534	1964	1619	1207	889	697	518
1.67V	3243	2452	1920	1591	1180	856	680	501
1.70V	3099	2359	1876	1553	1157	844	664	483
1.75V	2956	2304	1827	1525	1135	818	636	460
1.80V	2812	2062	1619	1415	1010	730	576	442
1.85V	2504	1844	1470	1306	938	685	542	420

Note:
the end voltage means Voltage per cell.
(Above characteristics data are average values obtained within three charge/discharge cycles, not the minimum values.)

General features for MPHR12-320W (High rate discharge)

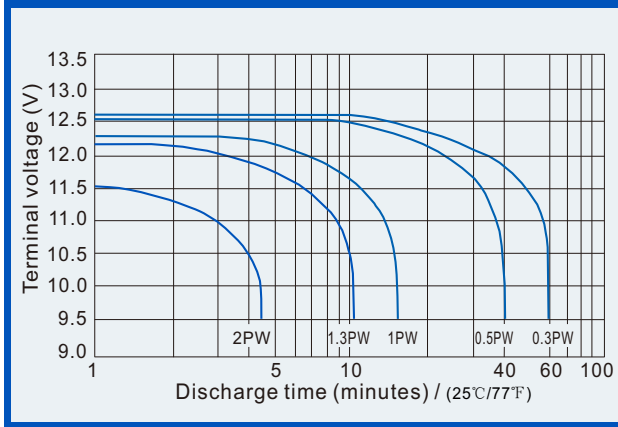
- * Positive and negative plates in lead-calcium tin alloy
- * Superior energy density
- * Operates at a low internal pressure.
- * Gas Recombination
- * Very high power output
- * Application specific designs
- * Six months self-life at 25°C (77°F), then a freshening charge is required.
- * Design life 10 years @ floating service at 25°C (77°F).



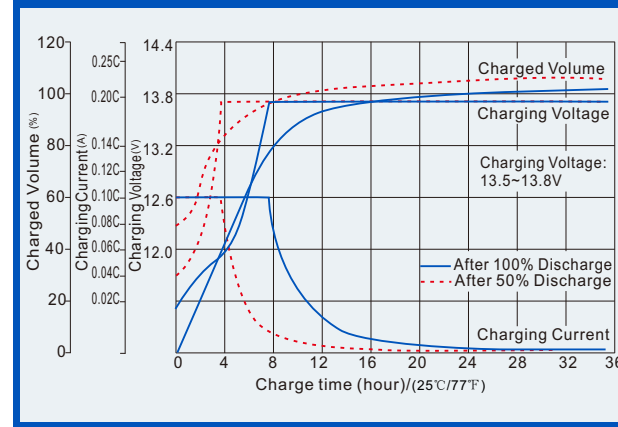
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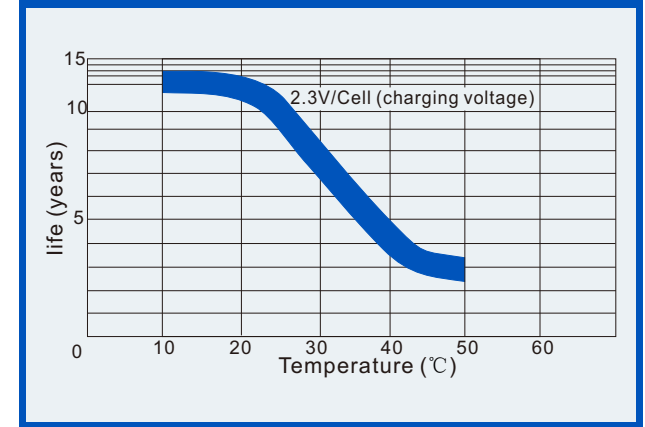
Terminal voltage(V) and discharge time



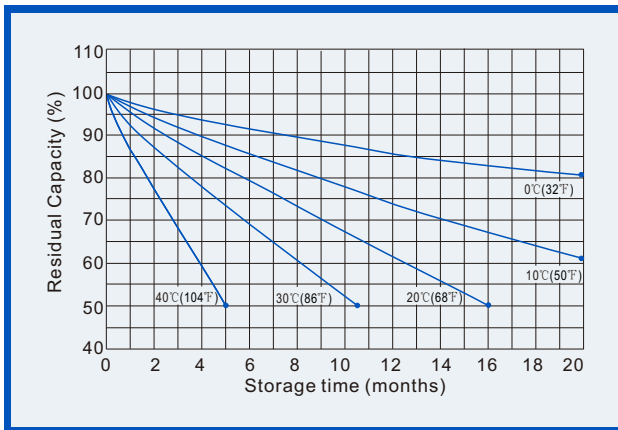
Battery voltage and charge time for standby use



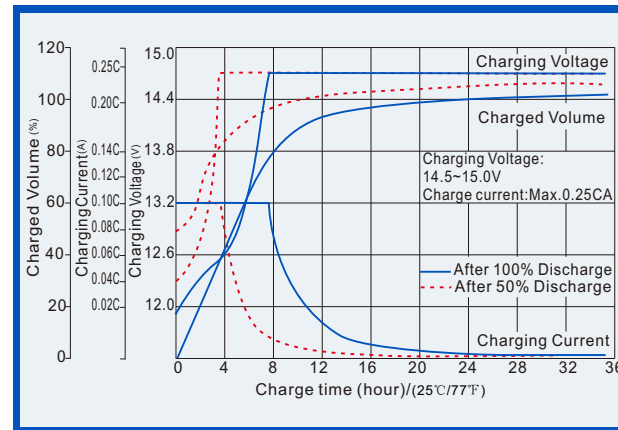
Life Characteristics of float service



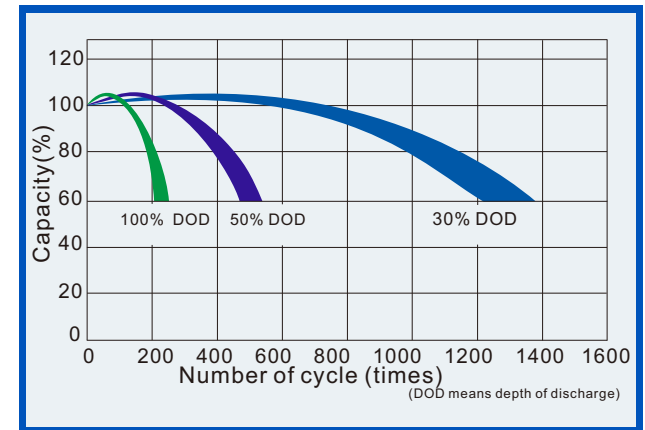
Self-discharge characteristics



Battery voltage and charge time for cycle use



Life characteristics of Cyclic Use



Charging procedures

Application	Charging voltage(V)			Max Charging current
	Temperature	Set Point	Allowable range	
Cycle Use	25°C(77°F)	14.70	14.50~15.00	22.5A
Standby Use		13.70	13.50~13.80	

Discharging current & discharging voltage

Final Discharging Voltage (V)	10.50	10.20	9.60	7.80
Discharging Power (W)	0.1P > (W)	0.1P ≥ (W) < 0.25P	0.25P ≤ (W) < 1.0P	W ≥ 1.0P