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# MSV 1000 ▶ 2V 1000Ah

MSV 1000 is a long service life battery up to 15 years expected life under normal float charge. As with all CSB batteries, all are rechargeable, highly efficient, leak proof and maintenance free.



MH14533(N)



No.:041005117



CSB-manufactured VRLA batteries are UL-recognized components under UL924 and UL1989.

CSB is also certified by ISO 9001 and ISO 14001.

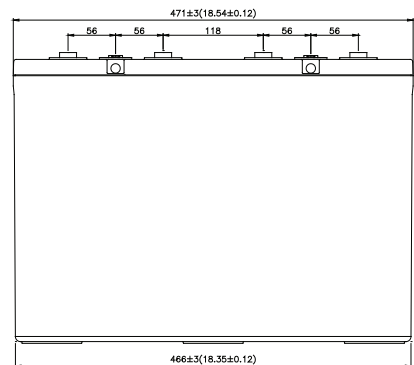
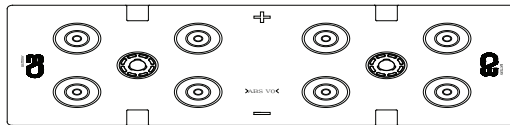
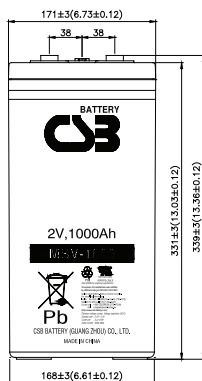
## ► Specification

Cells Per Unit	1
Voltage Per Unit	2
Capacity	1000Ah @ 10hr-rate to 1.80V per cell @25°C(77°F)
Weight	Approx. 64.4 kg(141.98 lbs)
Maximum Discharge Current	6000A(5sec)
Internal Resistance	Approx. 0.40 mΩ
Operating Temperature Range	Discharge: -20°C~50°C(-4°F~122°F) Charge: 0°C~40°C(32°F~104°F) Storage: -20°C~40°C(-4°F~104°F)
Nominal Operating Temperature Range	25°C±3°C(77°F±5°F)
Float Charging Voltage	2.23±0.02/Cell at 25°C(77°F) Temp. Coefficient ±3.3mV/°C(±1.8mV/°F)
Recommended Maximum Charging Current Limit	300A
Equalization / Cycle Use Charging Voltage	2.35V Temps coefficient ±3.3mV/°C(±1.8mV/°F)
Terminal	Pb-Ca-Sn Alloy(L / Recessed Terminal)
Container Material	The container and cover are made of flame retardant plastics which meet ABS(UL 94-V0) specifications.The oxygen index level is higher than 28

## ► Dimensions :

Unit: mm (inch)

Overall Height (H)	Container height (h)	Length (L)	Width (W)
339±3 (13.35±0.12)	331±3 (13.03±0.12)	171±3 (6.73±0.12)	471±3 (18.54±0.12)



## Constant Current Discharge Characteristics Unit:A (25°C, 77°F)

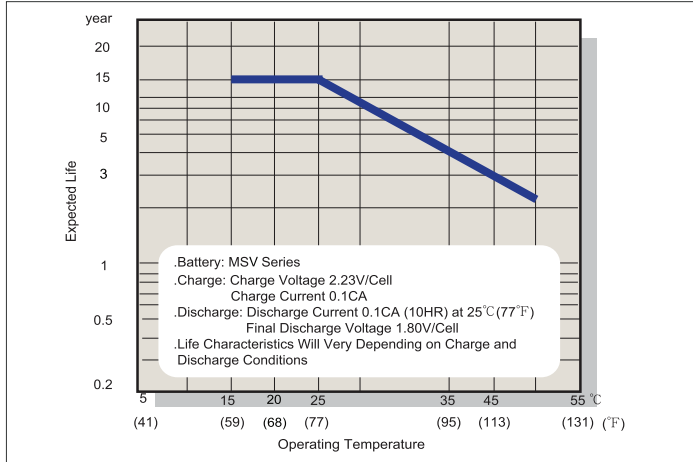
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1423	979	648	383	288	228	193	168	133	113
1.67V	1298	933	618	370	273	220	185	160	130	110
1.70V	1206	910	608	363	270	218	183	158	128	108
1.75V	1052	839	560	343	253	206	173	150	123	103
1.80V	915	734	528	330	243	198	168	148	120	100
1.83V	795	649	488	310	233	188	160	140	114	97.5

## Constant Power Discharge Characteristics Unit:W (25°C, 77°F)

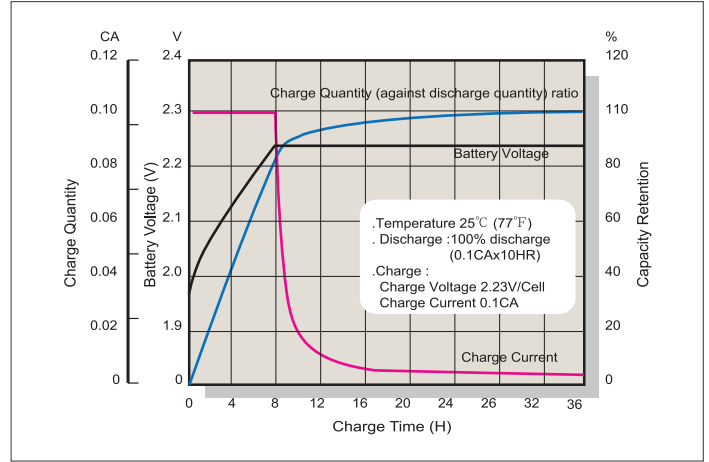
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	2332	1722	1153	693	520	418	353	310	250	210
1.67V	2134	1648	1150	688	513	413	350	308	248	208
1.70V	2033	1595	1113	673	503	410	348	303	243	205
1.75V	1842	1489	1040	643	483	393	333	290	238	200
1.80V	1679	1333	980	618	463	378	323	283	230	198
1.83V	1430	1156	903	580	443	360	308	270	220	190

Ratings presented herein are subject to revision without notice. Please refer to [www.csb-battery.com](http://www.csb-battery.com) to confirm the latest version.

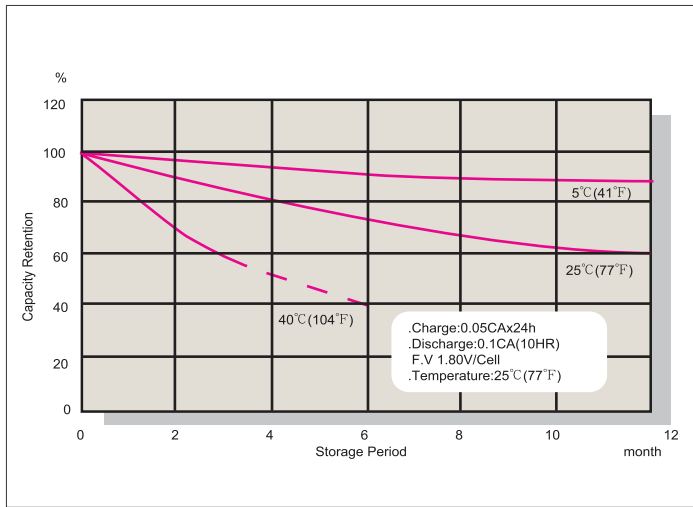
### Expected Life V.S Operating Temperature



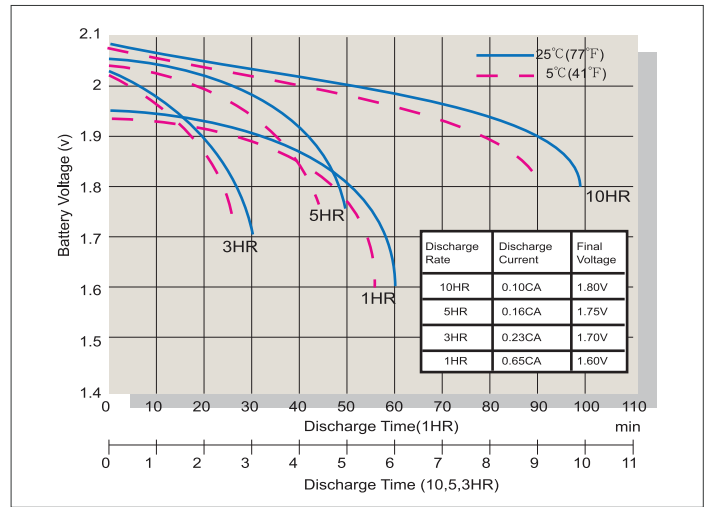
### Typical Constant Voltage Charge Characteristics



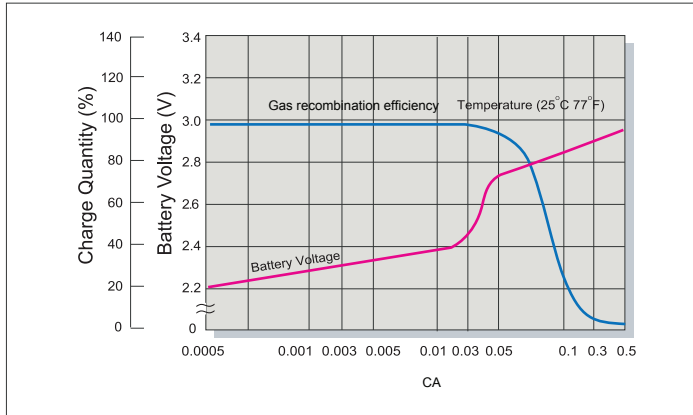
### Capacity Retention Characteristics



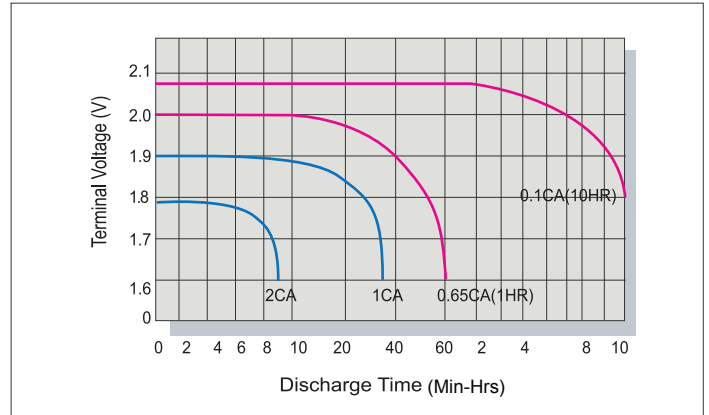
### Discharge Characteristics



### Oxygen Recombination Efficiency Chart



### Terminal Voltage (V) and Discharge Time 25°C (77°F)



### Charging Procedures

Application	Charge Voltage (V/Cell)			Max. Charge Current
	Temperature	Set Point	Allowable Range	
Standby	25°C (77°F)	2.23	2.21-2.25	0.3C

### Discharge Current VS. Discharge Voltage

Discharge Current (A)	Final Discharge Voltage (V/Cell)
0.05C > A	1.90
0.15C > A ≥ 0.05C	1.80
0.20C > A ≥ 0.15C	1.75
0.40C > A ≥ 0.20C	1.70
A > 0.40C	1.60

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