



# MSV series MSV-650



## Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.  
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

### General Design for Standby Power Applications

#### 【Design Life】

Up to 15 Years in Standby Service at 25°C  
Eurobat (20°C) : >12 YEARS VERY LONG LIFE

#### 【Operating Temperature Range】

Nominal Operating Temperature : 25°C (77°F)  
Discharge : -15°C ~ 50°C (5°F~122°F)  
Charge: -15°C ~ 40°C (5°F~104°F)  
Storage: -15°C ~ 40°C (5°F~104°F)

#### 【Float Charging Voltage】

2.21 ~ 2.25 VDC/Unit at 25°C (77°F)

#### 【Equalization Charging Voltage】

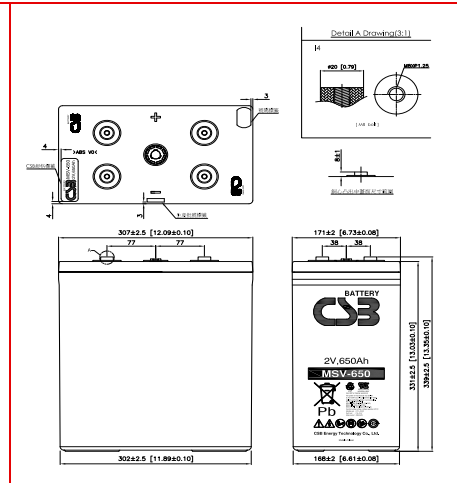
2.35 VDC/Unit at 25°C (77°F)

#### 【Self Discharge】

Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F);  
Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).

### Specification

Nominal Voltage	2V (single cell per unit)	
Nominal Capacity	650 Ah @10hr-rate to 1.80V per cell @25°C (77°F)	
Weight	Approx. 41.40 Kg (91.25 lbs)	
Maximum Discharge Current	3900 A (5sec)	
Internal Resistance	Approx. 0.38 mΩ	
Short Circuit Current	--	
Maximum Charge Current	195 A	
Terminal types	I4 thread copper alloy terminal to accept M8 bolt	
Terminal tightening torque	126±25 Kg·cm / 109±22 Lbf·in / 12.3±2.5 N·m	
Container Material	Flame Retardant ABS (UL 94-V0)	
Dimensions	Length (L)	307.0±2.5 mm      12.09±0.10 inch
	Width (W)	171.0±2.0 mm      6.73±0.08 inch
	Container height (h)	331.0±2.5 mm      13.03±0.10 inch
	Overall Height (H)	339.0±2.5 mm      13.15±0.10 inch



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

F.V/Time	15MIN	30MIN	60MIN	2HR	2.5HR	3HR	5HR	6HR	8HR	10HR	20HR	24HR
1.60V	925	636	421	249	213	187	125	109	86.1	73.1	35.2	29.4
1.67V	844	606	401	241	203	177	120	104	84.5	71.5	35.1	29.2
1.70V	784	591	395	236	201	176	119	102	82.9	69.9	35.0	29.1
1.75V	684	545	364	223	188	164	112	97.5	79.6	66.6	34.6	28.9
1.80V	594	477	343	215	181	158	109	95.9	78.0	65.0	34.0	28.4
1.83V	517	422	317	202	172	151	104	91.0	74.1	63.4	33.4	27.8

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

F.V/Time	15MIN	30MIN	60MIN	2HR	2.5HR	3HR	5HR	6HR	8HR	10HR	20HR	24HR
1.60V	1516	1119	749	450	384	338	229	202	163	137	67.9	56.6
1.67V	1387	1071	748	447	380	333	228	200	161	135	67.6	56.3
1.70V	1322	1037	723	437	373	327	226	197	158	133	67.4	56.2
1.75V	1197	968	676	418	357	314	216	189	154	130	67.0	55.9
1.80V	1091	866	637	401	342	301	210	184	150	128	66.3	55.2
1.83V	929	751	587	377	325	288	200	176	143	124	65.1	54.3

Please refer to the official site for the latest rating confirmation. URL: [www.csb-battery.cn](http://www.csb-battery.cn)

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### Sales Offices

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Recognized under UL 1989,  
and certified by ISO 9001, 14001, 45001, 50001.



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