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# HRL 12390W ▶ 12V 390W

HRL 12390W is specially designed for high efficient discharge application. Its characteristics are high energy density, small footprint and high discharge efficiency. It can be used for more than 260 cycles at 100% discharge in cycle service, up to 10 years in standby service.



## Specification

Cells per unit	6	
Voltage per unit	12	
Capacity	390W @ 15min-rate to 1.67V per cell @25 °C(77°F)	
Weight	Approx.33 kg(72.75 lbs)	
Maximum Discharge Current	800A(5sec)	
Internal Resistance	Approx. 4 mΩ	
Operating Temperature Range	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)	
Nominal Operating Temperature Range	25°C±3°C (77°F±5°F)	
Float Charging Voltage	13.5to13.8VDC/unitAverageat25 °C (77°F)	to15.0VDC/unitAverage
Recommended Maximum Charging Current Limit	39A	
Equalization and Cycle Service	14.4 °C (77°F)	
Self Discharge	CSB Batteries can be stored for more than 6 months at 25°C (77°F). Please charge batteries before using. For higher temperatures the time interval will be shorter.	
Terminal	I2-Thread lead alloy recessed terminal to accept M6/M8 bolt	
Container Material	Polypropylene(UL 94-V0/File E50955)*Flammability resistance of (UL 94-HB/File E216959) can be available upon request.	



MH14533(N)



ISO9001  
No.:041005117



ISO 14001  
NO.UM 1-12-0045

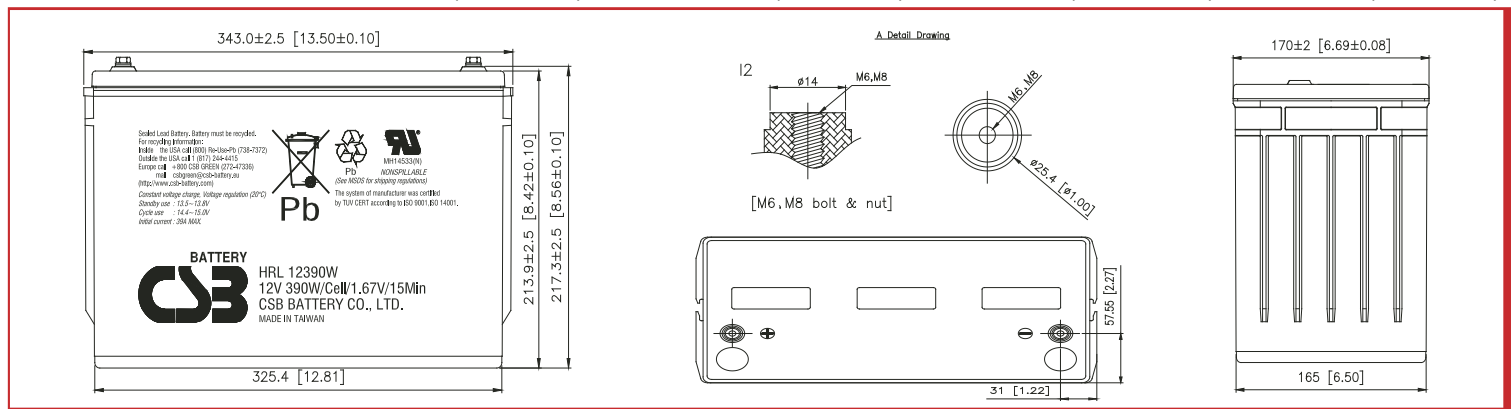
CSB-manufactured VRLA batteries are UL-recognized components under UL924 and UL1989.

CSB is also certified by ISO9001 and ISO14001.

## Dimensions :

Unit: mm (inch)

Overall Height (H)	Container height (h)	Length (L)	Width (W)
217.3±2.5 (8.56±0.10)	213.9±2.5 (8.42±0.10)	343.0±2.5 (13.50±0.10)	170.0±2.0 (6.69±0.08)



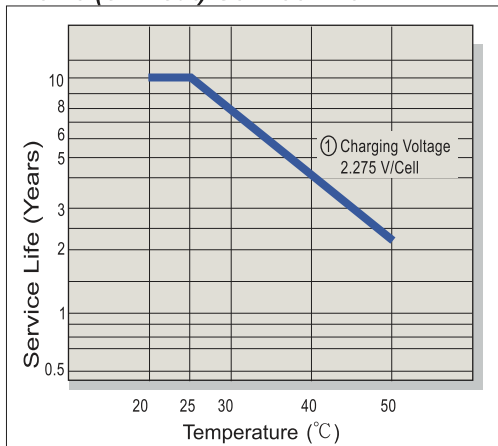
## Constant Current Discharge Characteristics Unit:A (25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	45MIN	50MIN	60MIN	90MIN
1.60V	443	308	236	191	142	112	102	93.5	78.8	58.0
1.67V	398	285	223	182	134	108	97.1	88.8	75.1	54.1
1.70V	376	274	215	177	130	105	94.6	86.4	72.2	51.4
1.75V	336	254	203	167	122	99.3	90.8	82.2	69.2	49.1
1.80V	295	232	187	154	114	92.2	83.8	76.4	64.7	45.6
1.85V	254	210	171	141	105	85.8	78.2	71.6	60.7	43.4

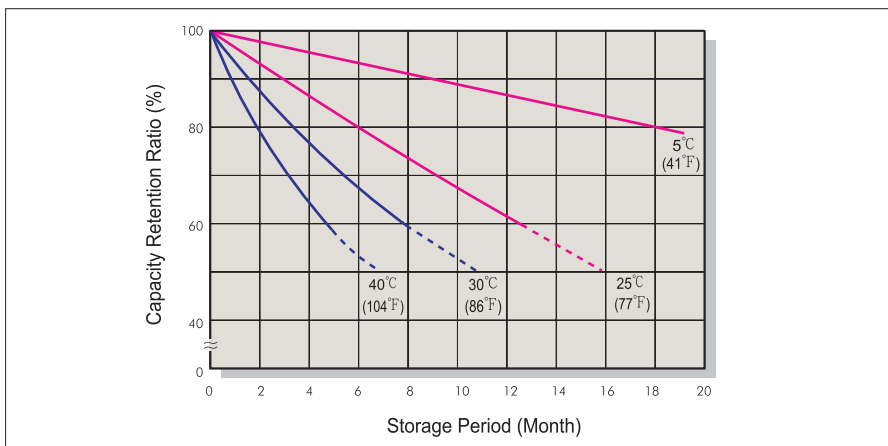
## Constant Power Discharge Characteristics Unit:W (25°C, 77°F)

F.V/Time	5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	45MIN	50MIN	60MIN	90MIN
1.60V	4,674	3,276	2,526	2,052	1,524	1,206	1,098	1,014	858	630
1.67V	4,226	3,051	2,388	1,956	1,471	1,182	1,068	978	820	600
1.70V	4,000	2,945	2,330	1,910	1,440	1,164	1,050	960	804	574
1.75V	3,615	2,770	2,217	1,809	1,380	1,117	1,013	936	776	556
1.80V	3,226	2,600	2,090	1,708	1,296	1,062	964	882	746	530
1.85V	2,868	2,404	1,957	1,614	1,213	990	902	828	708	505

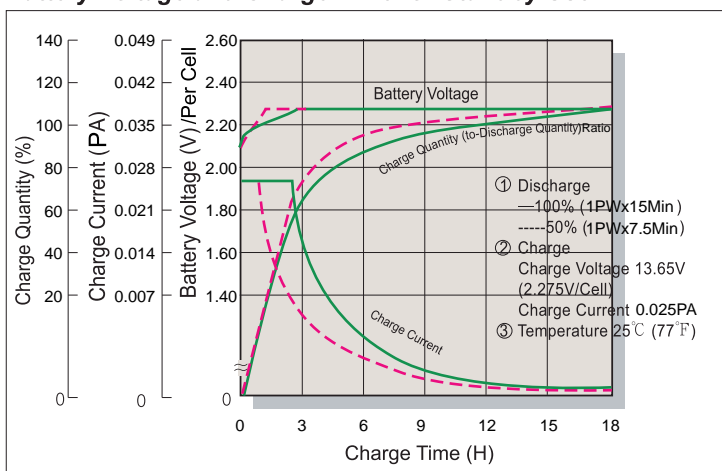
### Trickle (or Float) Service Life



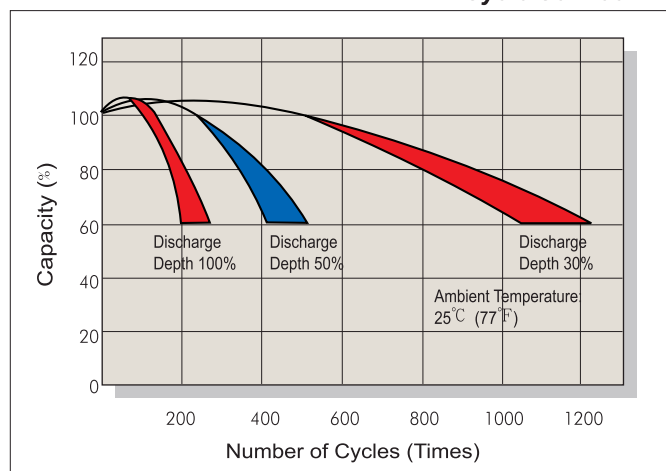
### Capacity Retention Characteristic



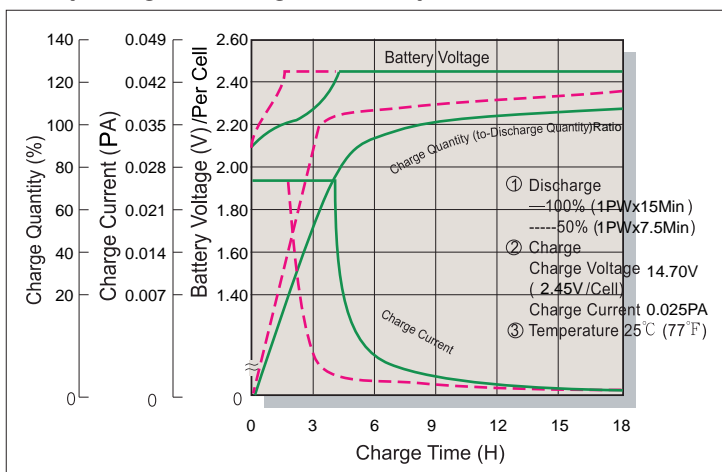
### Battery Voltage and Charge Time for Standby Use



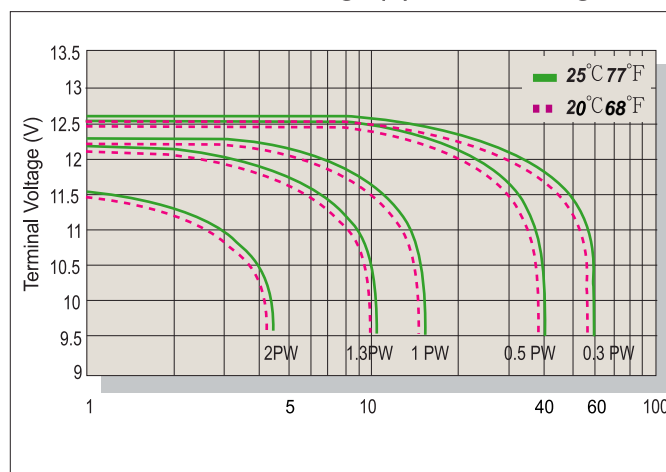
### Cycle Service Life



### Battery Voltage and Charge Time for Cycle Use



### Terminal Voltage (V) and Discharge Time



### Charging Procedures

Application	Charge Voltage (V/Cell)			Max. Charge Current
	Temperature	Set Point	Allowable Range	
Cycle Use	25°C (77°F)	2.45	2.40~2.50	0.1PA
Standby	25°C (77°F)	2.275	2.25~2.30	

### Discharge Current VS. Discharge Voltage

Final Discharge Voltage (V/Cell)	1.75	1.70	1.60	1.30
Discharge Power (W)	0.1P > (W)	0.1P ≤ (W) < 0.25P	0.25P ≤ (W) < 1.0P	(W) ≥ 1.0P

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