

# STARMAX

The world's leading battery brand



## HRL SERIES-LONG LIFE **BATTERIES**

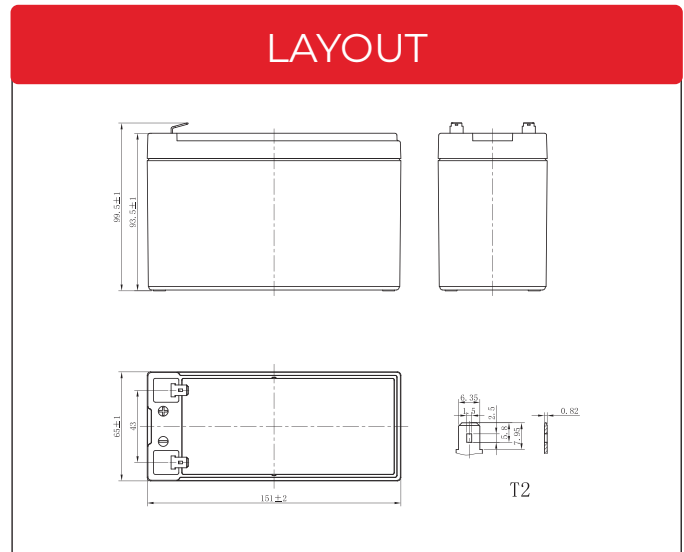
HRL 1236W



[www.starmaxbatteries.com](http://www.starmaxbatteries.com)

# HRL Series

## HRL 1236W



## General Features

- ✓ Long-life design
- ✓ High quality AGM separator: Extend cycle life and prevent micro short circuit
- ✓ PbCaSn alloy for plate grids: Less gassing, less self-discharging
- ✓ Unique vent valve design: Reduce water losing and prevent air/spark going inside

## Applications

- ✓ UPS
- ✓ Hospitals & Testing Laboratories
- ✓ Emergency Power Supply
- ✓ Industrial Process Control Facilities
- ✓ Banks & Financial Markets
- ✓ Data & Network Operation Centers

## Standards

- ✓ Compliance with IEC 60896 and YD/T 799 standards
- ✓ Manufactured in Starmax, ISO 45001, ISO 9001 and ISO 14001 certified production facilities



# SPECIFICATIONS

Rated Voltage	12V		
Nominal Rate	(W <sub>15</sub> ,1.67V/cell)	36W/cell	
Nominal Capacity	(C <sub>20</sub> ,1.75V/cell)	8.0Ah	
Dimensions	Length	151±2mm (5.94 inches)	
	Width	65±1mm (2.56 inches)	
	Container height	93.5±1mm (3.68 inches)	
	Total height	99.5±1mm (3.92 inches)	
Approx. weight	2.70kg (5.95 lbs)		
Terminal	T2		
Container material	ABS: UL 94 HB or V-0		
Rated capacity (25°C)	7.49 Ah	C10(0.749A,1.80V/cell)	
	7.36 Ah	C8(0.920A,1.80V/cell)	
	6.90 Ah	C5(1.38A,1.75V/cell)	
	6.12 Ah	C3(2.04A,1.75V/cell)	
	5.59 Ah	C1(5.59A,1.60V/cell)	
Max. discharge current	120A (5s)		
Internal resistance (25°C)	Approx 16mΩ		
Operating temp. range	Discharge	-20~55°C (4~131°F)	
	Charge	-20~40°C (-4~104°F)	
	Storage	-15~50°C (5~122°F)	
Nominal operating temp. range	25±3°C (77±5°F)		
Max.Charging Current(25°C)	2.00A		
Charge voltage(25°C)	<b>Charge voltage</b>		<b>Temp. Coefficient</b>
	Float	2.25~2.30V/cell	-3mV/cell/°C
	Equalization	2.30~2.40V/cell	-4mV/cell/°C
Effect of temp. to Capacity	40°C (104°F)		106%
	25°C (77°F)		100%
	0°C (32°F)		86%
Self discharge	≤3%/month @ 25°C		

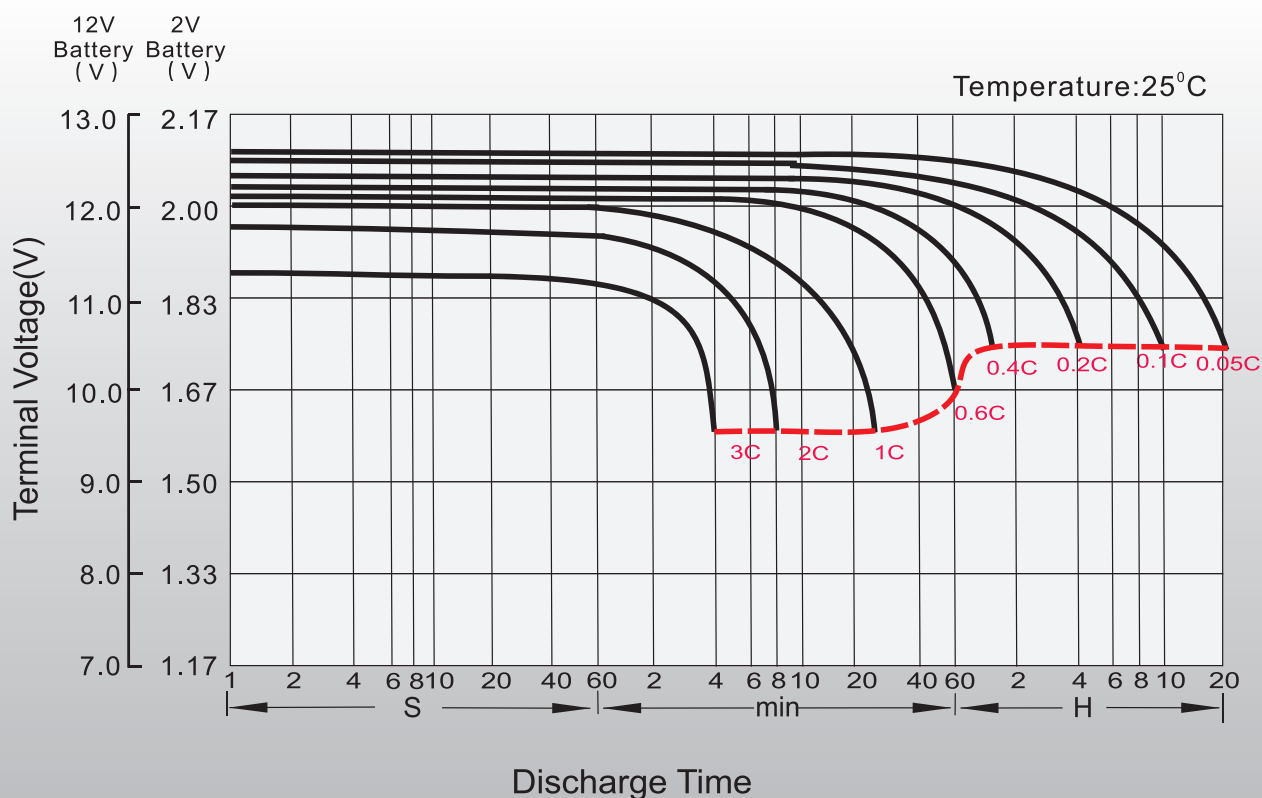
## Constant Current Discharge (Amperes) at 25°C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	1.5h	2h	3h	4h	5h	8h	10h	20h
1.85V/cell	31.7	20.7	16.7	12.8	8.94	6.35	5.05	3.59	2.74	1.98	1.57	1.34	0.900	0.739	0.391
1.80V/cell	34.1	21.9	17.6	13.3	9.22	6.53	5.18	3.67	2.79	2.01	1.60	1.36	0.920	0.749	0.396
1.75V/cell	35.9	22.8	18.1	13.7	9.46	6.67	5.28	3.74	2.84	2.04	1.62	1.38	0.930	0.757	0.400
1.70V/cell	37.6	23.7	18.8	14.1	9.70	6.82	5.38	3.80	2.88	2.07	1.64	1.40	0.940	0.764	0.403
1.67V/cell	38.9	24.4	19.2	14.4	9.87	6.92	5.46	3.85	2.91	2.09	1.66	1.41	0.940	0.770	0.406
1.60V/cell	41.3	25.4	19.9	14.8	10.1	7.10	5.59	3.93	2.97	2.13	1.69	1.43	0.960	0.780	0.411

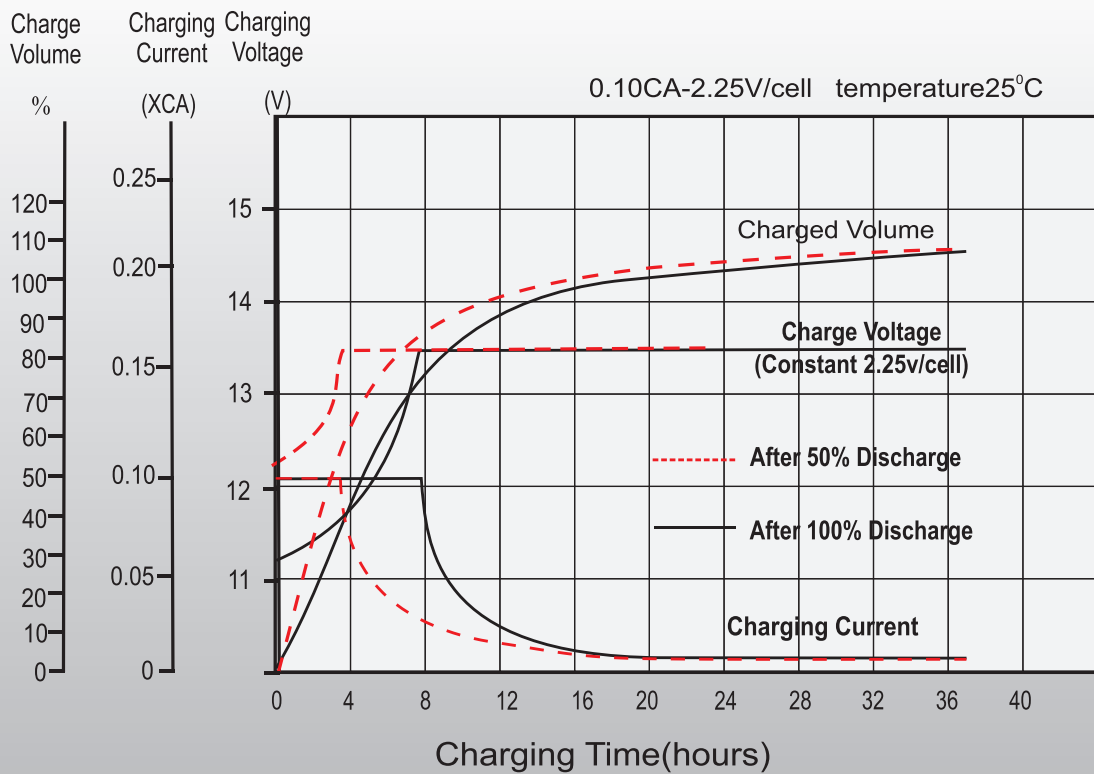
## Constant Power Discharge (Watts/cell) at 25°C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	1.5h	2h	3h	4h	5h	8h	10h	20h
1.85V/cell	60.0	39.4	32.0	24.7	17.3	12.3	9.83	7.02	5.36	3.88	3.10	2.65	1.79	1.47	0.782
1.80V/cell	63.9	41.4	33.4	25.5	17.7	12.6	10.0	7.14	5.45	3.94	3.14	2.68	1.82	1.49	0.791
1.75V/cell	66.6	42.8	34.3	26.1	18.1	12.8	10.2	7.25	5.53	3.99	3.18	2.71	1.84	1.50	0.800
1.70V/cell	69.1	44.2	35.2	26.7	18.5	13.1	10.4	7.36	5.60	4.04	3.22	2.74	1.85	1.52	0.807
1.67V/cell	70.9	45.2	36.0	27.2	18.8	13.3	10.5	7.44	5.65	4.08	3.24	2.76	1.87	1.53	0.813
1.60V/cell	73.7	46.5	37.0	27.9	19.2	13.5	10.7	7.56	5.74	4.14	3.29	2.80	1.89	1.54	0.822

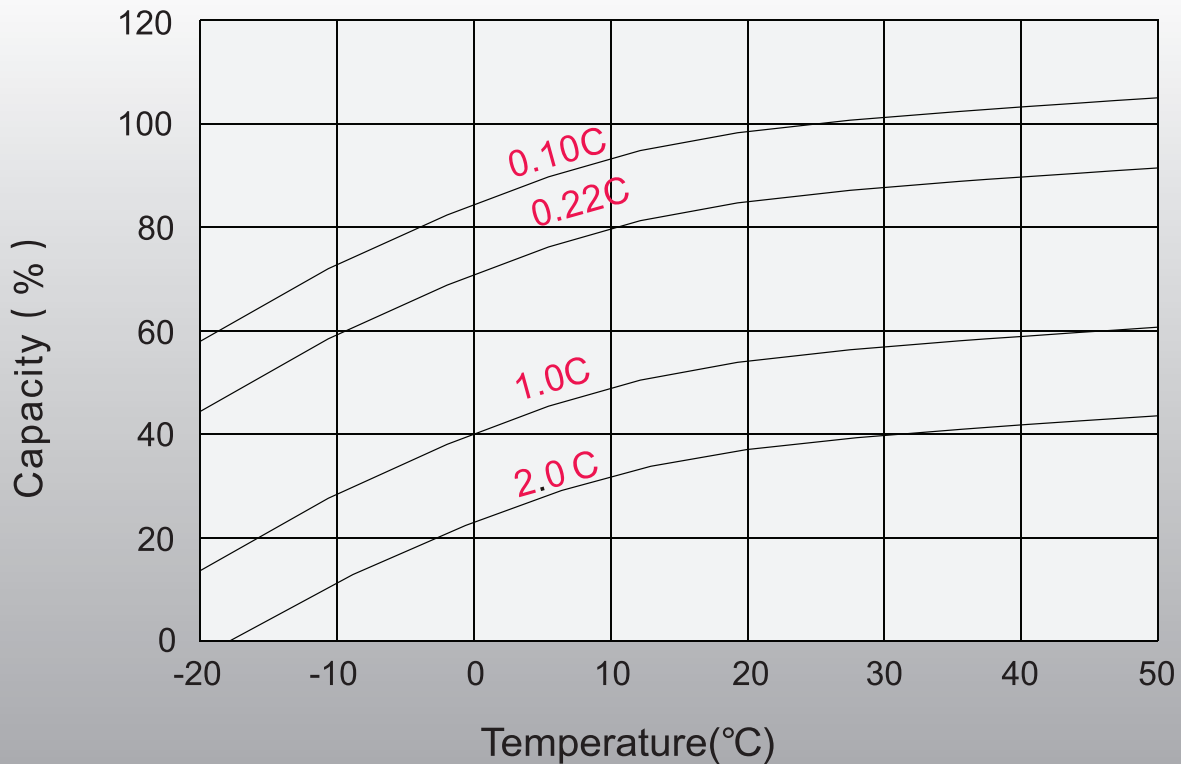
## Discharge Characteristics



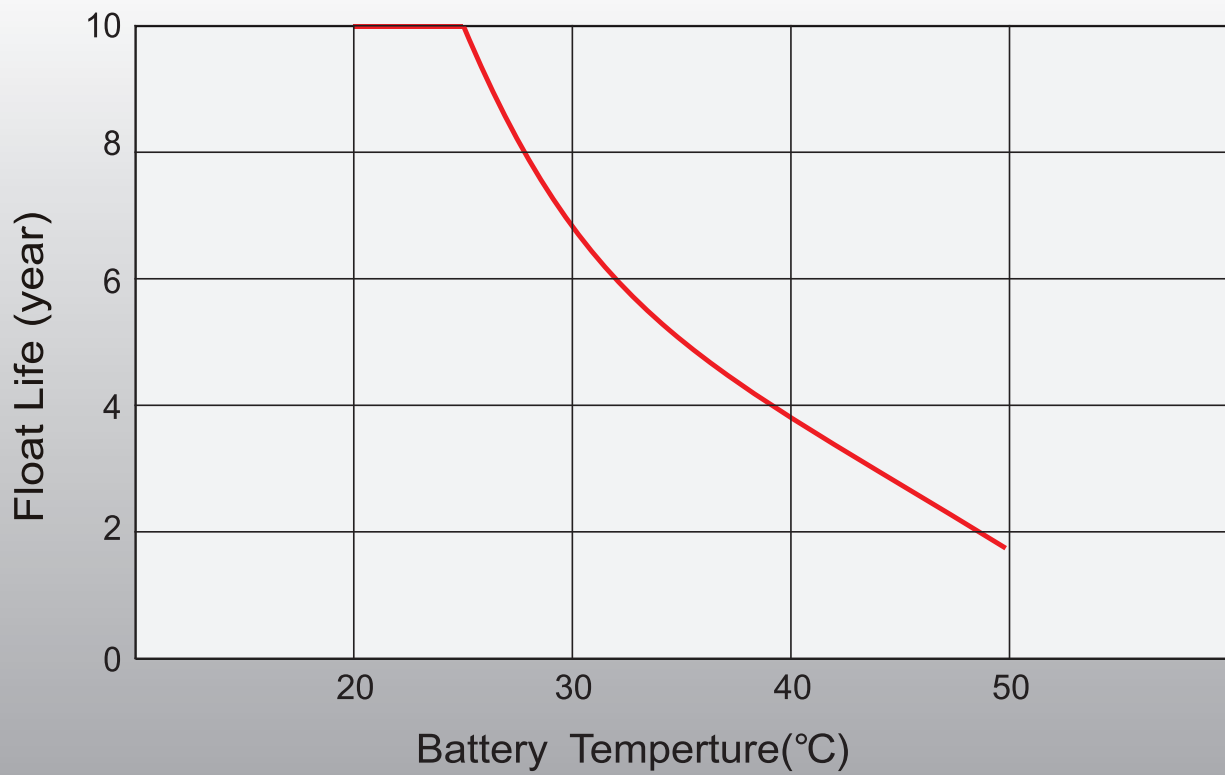
# Float Charging Characteristics



# Temperature Effects in Relation to Battery Capacity



# Effect of Temperature on Long Time Float Life





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