

# STARMAX

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## HR SERIES-HIGH RATE **BATTERIES**

HR 12110W

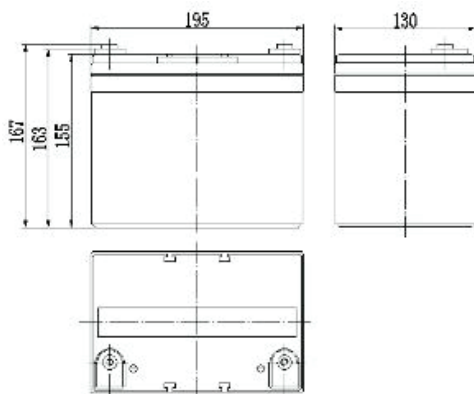


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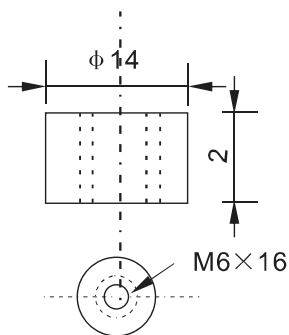
# HR 12110W



## Outer Dimensions (mm)



## Terminal (mm)



T14

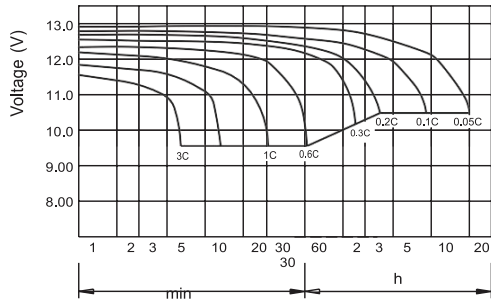
## SPECIFICATIONS

Nominal Voltage	12V	
Number of Cell	6 cells	
Rated Capacity (15min. rat)	150 Watts/cell	
Dimensions	Length	195±2mm(7.68inch)
	Width	130±2mm(5.12inch)
	Height	155±2mm(6.10inch)
	Total Height	167±2mm(6.57inch)
Approx. Weight	11.5kg (25.4lbs)±3%	

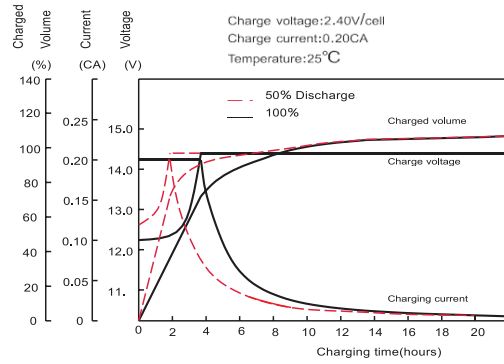
## CHARACTERISTICS

Capacity (20HR, 25°C)	36Ah	
Capacity (15min.rate, 25°C)	150 Watts/cell	
Terminal Type	T2/T1	
Internal Resistance (Fully Charged, 25°C)	Approx. 8mΩ	
Capacity Affected by Temperature (10HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-Discharge (25°C)	3 months	Remaining Capacity: 91%
	6 months	Remaining Capacity: 82%
	12months	Remaining Capacity: 65%
Nominal Operating Temperature	25±3°C (77±5°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)
Float Charging Voltage (25°C)	13.50 to 13.80V Temperature Compensation: -18mV/°C	
Cyclic Charging Voltage (25°C)	14.50 to 15.00V Temperature Compensation: -30mV/°C	
Maximum Charging Current	10.8A	
Terminal Material	Copper	
Maximum Discharge Current	330A(5 sec)	
Design Floating Life(20°C)	10 Years	

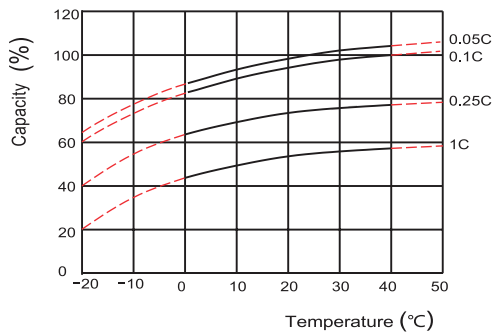
### Discharge Characteristics



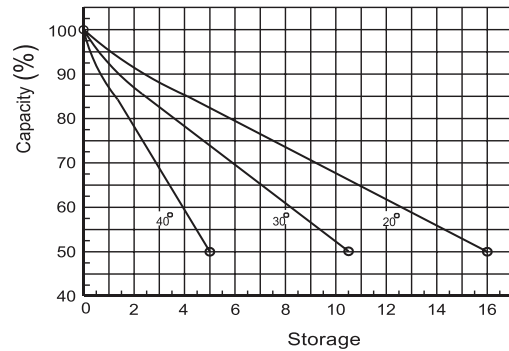
### Charging Characteristics (25°C)



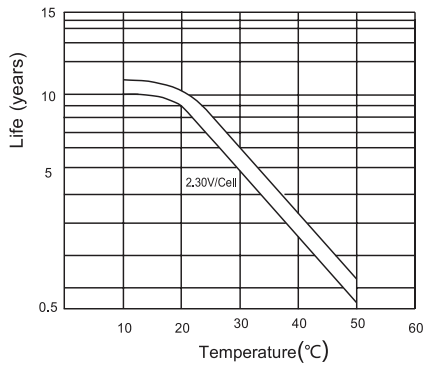
### Effect of Temp on Capacity



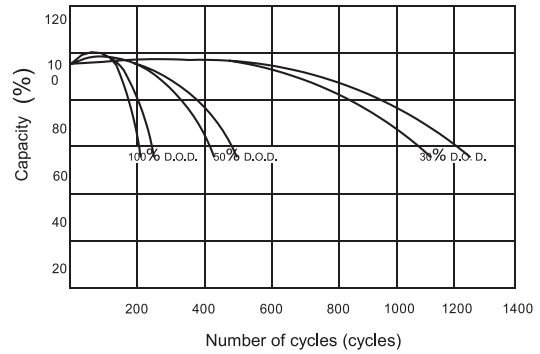
### Self-Discharge Characteristics



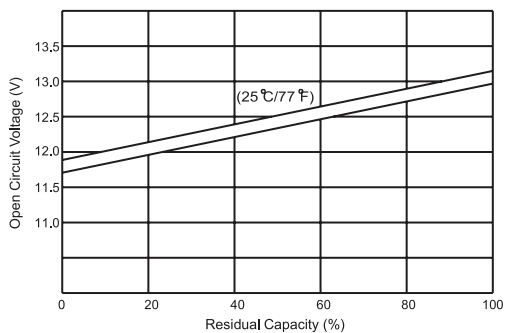
### Floating Life on Temperature



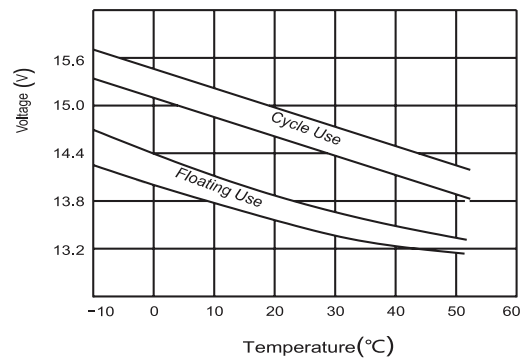
### Cycle Service Life on D.O.D (25°C)



### Relationship for OCV and Capacity (25°C)



### Relationship for Charging Voltage and Temp



## Construction

Component	Positive Plate	Negative Plate	Container	Cover	Separator	Electrolyte	Safety Valve	Terminal
Raw material	Lead Dioxide	Lead	ABS	ABS	AGM	Sulfuric Acid	Rubber	Copper

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

F.V/Time	5min	10min	15min	20min	30min	45min	60min	2h	3h	4h	5h	6h
<b>1.60V/cell</b>	162.35	97.95	80.13	64.17	45.42	33.78	27.60	14.01	9.98	8.04	6.99	5.97
<b>1.67V/cell</b>	146.13	93.52	77.77	61.59	43.98	32.75	26.88	13.80	9.89	7.97	6.93	5.93
<b>1.70V/cell</b>	138.64	91.16	75.29	60.36	43.16	32.14	26.57	13.70	9.85	7.94	6.90	5.90
<b>1.75V/cell</b>	126.41	87.24	72.82	58.30	42.13	31.42	25.96	13.49	9.79	7.88	6.85	5.86
<b>1.80V/cell</b>	113.92	82.4	69.01	55.11	40.58	30.18	25.13	13.18	9.50	7.65	6.64	5.69

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

F.V/Time	5min	10min	15min	20min	30min	45min	60min	2h	3h	4h	5h	6h
<b>1.60V/cell</b>	345.05	184.37	154.60	123.70	87.65	65.30	53.25	27.09	19.61	15.80	13.80	11.88
<b>1.67V/cell</b>	313.12	176.13	150.59	106.40	84.87	63.24	51.91	26.88	19.50	15.69	13.70	11.76
<b>1.70V/cell</b>	297.67	172.01	145.44	118.76	83.33	62.11	51.19	26.78	19.38	15.69	13.60	11.65
<b>1.75V/cell</b>	272.95	163.77	141.73	112.48	81.37	60.56	50.16	26.27	19.26	15.57	13.60	11.64
<b>1.80V/cell</b>	250.29	154.5	133.28	106.30	78.28	58.40	48.62	25.65	18.68	15.11	13.18	11.26



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