

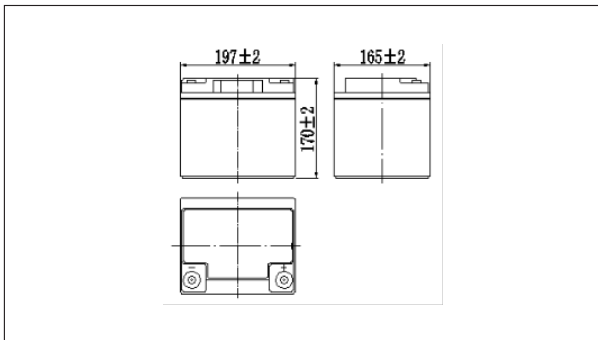
## HR12160W-FR (12V160 Watts/cell)

### ● Specifications

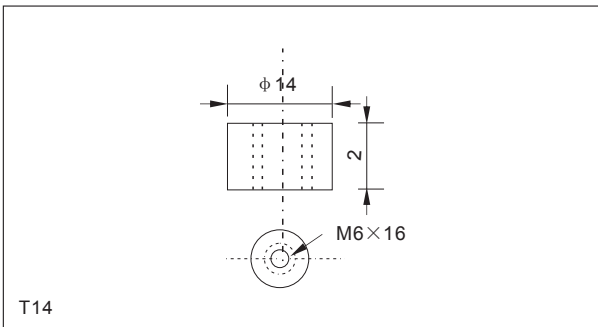
Nominal Voltage	12V	
Number of cell	6 cells	
Rated capacity(15min.rat)	160 Watts/cell	
Dimensions	Length	197±2mm(7.76inch)
	Width	165±2mm(6.50inch)
	Height	170±2mm(6.69inch)
	Total Height	170±2mm(6.69inch)
Approx. Weight	14.3kg(31.5lbs)±3%	



### ● Outer dimensions (mm)



### ● Terminal Type (mm)



### ● Characteristics

Capacity(20HR,25°C)	45Ah	
Capacity(15min.rate,25°C)	160 Watts/cell	
Terminal type	T14	
Internal resistance (Fully charged,25°C)	Approx.7m Ω	
Capacity affected by temperature (20HR)	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%
	12 months	Remaining Capacity:65%
Nominal operating temperature	25°C ±3°C(77°F ±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	13.5A	
Maximum discharge current	400A(5 sec.)	
Designed floating life(20°C)	10years	

### ● Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Leaddioxide	Lead	ABS	ABS	AGM	Sulfuric acid	Rubber	Copper

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

F.V/Time	10min	15min	20min	30min	45min	60min	2h	3h	4h	5h	6h
1.60V/cell	104	85.5	68.4	48.4	36.1	29.4	16.4	11.8	9.50	8.26	7.07
1.67V/cell	100	82.9	65.6	46.9	34.9	28.7	16.3	11.7	9.42	8.19	7.01
1.70V/cell	97.1	80.3	64.3	46.0	34.3	28.3	16.2	11.6	9.38	8.16	6.98
1.75V/cell	93.0	77.6	62.1	44.9	33.4	27.7	16.0	11.6	9.32	8.10	6.93
1.80V/cell	87.7	73.5	58.8	43.2	32.2	26.8	15.6	11.2	9.04	7.86	6.72

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

F.V/Time	10min	15min	20min	30min	45min	60min	2h	3h	4h	5h	6h
1.60V/cell	196	165	132	93.5	69.6	56.8	32.1	23.2	18.7	16.4	14.0
1.67V/cell	188	160	127	90.5	67.4	55.4	31.8	23.0	18.6	16.2	13.9
1.70V/cell	183	155	124	88.8	66.2	54.5	31.6	22.9	18.5	16.2	13.8
1.75V/cell	175	150	120	86.6	64.6	53.5	31.1	22.8	18.4	16.0	13.7
1.80V/cell	165	142	113	83.5	62.2	51.8	30.3	22.1	17.8	15.6	13.3

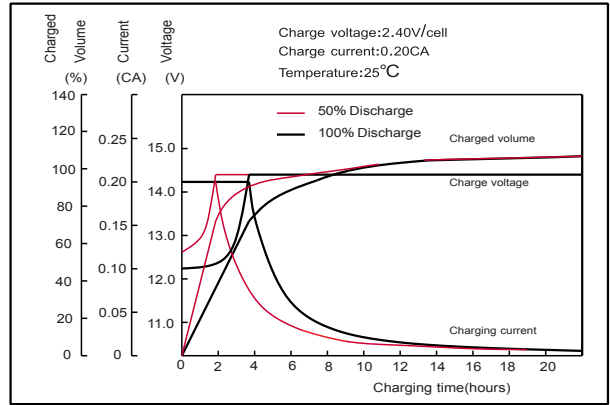
Note: The above characteristics data can be obtained within three charge or discharge cycles.

# HR12160W-FR (12V160 Watts/cell)

## ● Discharge characteristics(25°C)



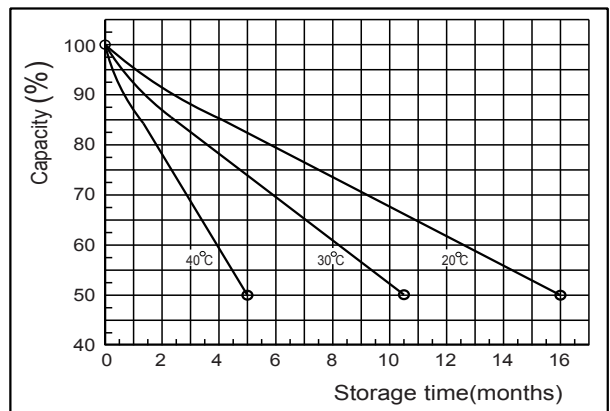
## ● Charging characteristics (25°C)



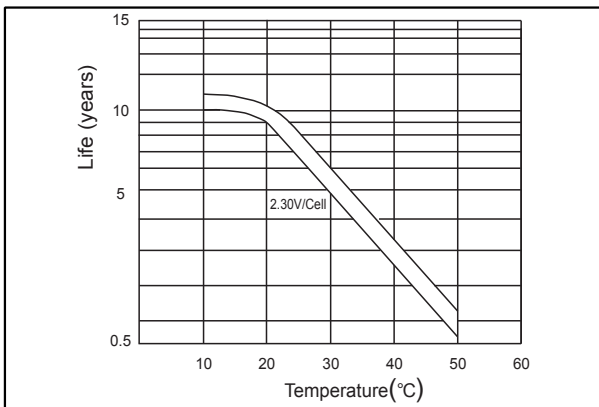
## ● Effect of Temperature on Capacity



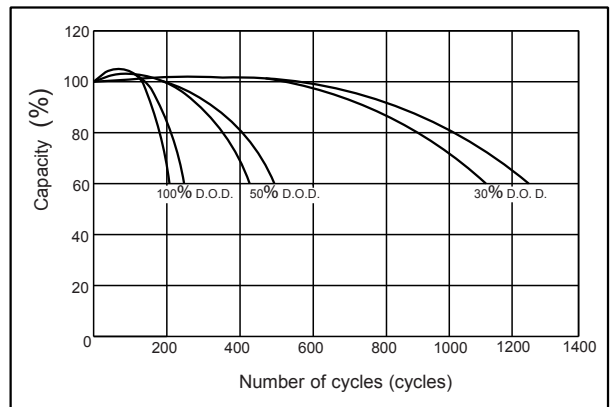
## ● Self-discharge characteristics



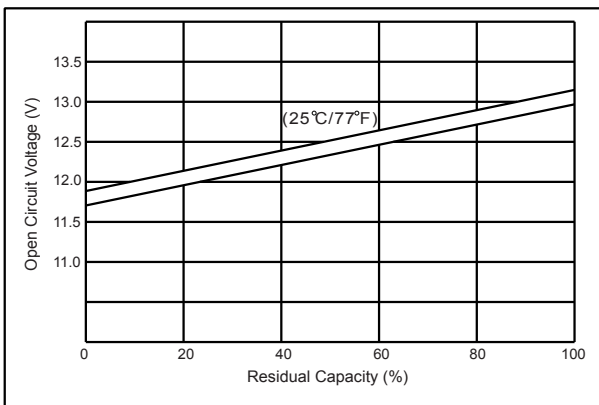
## ● Floating Life on Temperature



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



## ● The relationship for OCV and Capacity (25°C)



## ● The relationship for Charging voltage and Temperature

