



# EV12-33 (12V33Ah)

EV (Electric Vehicle) series is specially designed for frequent deep cycle discharge. By using the specially designed active material and strong grids, the EV series battery offers reliable performance in high load situations and can deliver more than 300 cycles at 100% DOD. Suitable for mobility scooters, electric wheel chairs, golf buggies etc.

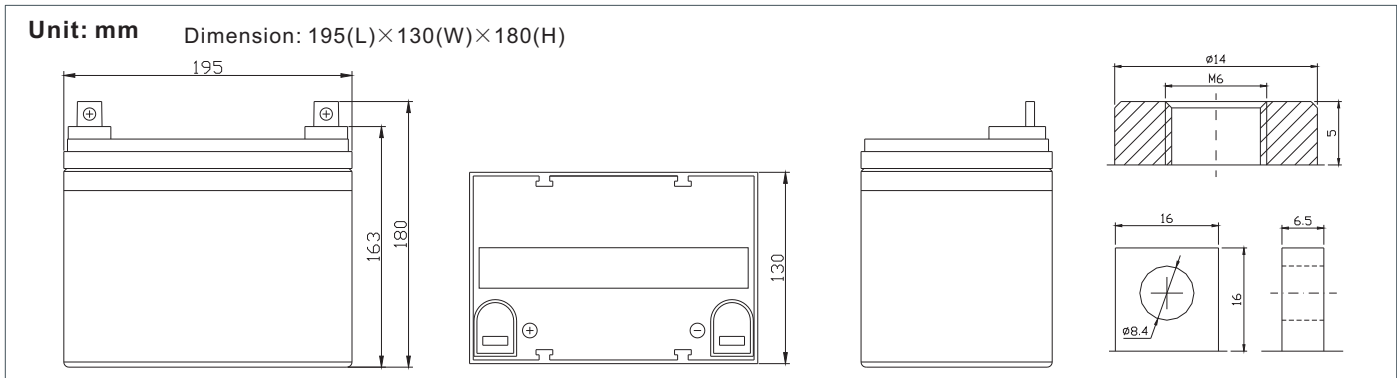


## Specification

<b>Cells Per Unit</b>	6
<b>Voltage Per Unit</b>	12
<b>Capacity</b>	33Ah@10hr-rate to 1.80V per cell @25°C
<b>Weight</b>	Approx. 10.2 Kg(Tolerance±3%)
<b>Max. Discharge Current</b>	330 A (5 sec)
<b>Internal Resistance</b>	Approx. 9 mΩ
<b>Operating Temperature Range</b>	Discharge: -20°C~60°C Charge: 0°C~50°C Storage: -20°C~60°C
<b>Normal Operating Temperature Range</b>	25°C±5°C
<b>Float charging Voltage</b>	13.6 to 13.8 VDC/unit Average at 25°C
<b>Recommended Maximum Charging Current Limit</b>	9.9 A
<b>Equalization and Cycle Service</b>	14.6 to 14.8 VDC/unit Average at 25°C
<b>Self Discharge</b>	RITAR Valve Regulated Lead Acid (VRLA) batteries can be stored for more than 6 months at 25°C. Self-discharge ratio less than 3% per month at 25°C. Please charge batteries before using.
<b>Terminal</b>	Terminal F7/F11
<b>Constainer Material</b>	A.B.S. UL94-HB, UL94-V0 Optional.



## Dimensions



### Constant Current Discharge Characteristics: A(25°C)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
9.60V	118.0	86.86	64.10	37.51	21.45	13.08	8.825	7.338	5.848	4.220	3.434	1.818
10.0V	114.6	82.65	62.78	36.87	21.02	12.99	8.758	7.304	5.811	4.185	3.400	1.784
10.2V	111.2	79.73	61.80	36.18	20.49	12.89	8.593	7.270	5.775	4.151	3.367	1.750
10.5V	99.83	73.57	58.84	35.91	20.06	12.79	8.392	7.202	5.702	4.117	3.333	1.716
10.8V	90.10	67.09	54.24	35.30	19.47	12.56	8.254	7.032	5.659	4.048	3.303	1.699
11.1V	76.94	59.96	48.65	33.05	18.78	12.00	8.111	6.692	5.517	3.877	3.264	1.630

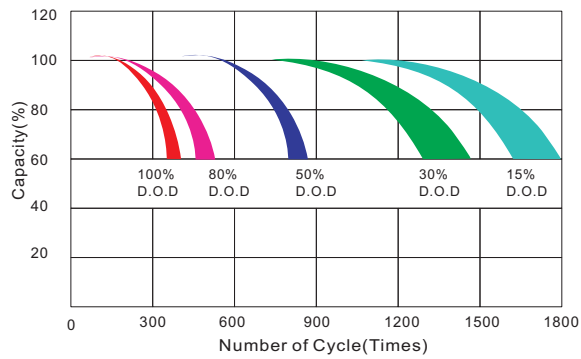
### Constant Power Discharge Characteristics: W(25°C)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
9.60V	1245	934.3	709.2	429.4	247.9	155.3	104.95	87.46	70.04	50.38	41.20	22.39
10.0V	1220	905.7	697.9	424.1	247.3	154.8	104.50	87.35	69.53	50.14	40.94	22.00
10.2V	1206	881.8	692.6	420.4	245.4	153.9	102.89	87.16	69.30	49.81	40.57	21.60
10.5V	1098.1	821.1	671.4	422.4	240.5	153.4	100.61	86.35	68.64	49.40	40.18	21.19
10.8V	1000.2	756.9	620.5	415.6	233.7	151.1	99.40	84.38	67.92	48.58	39.78	20.78
11.1V	878.5	690.9	569.6	391.4	225.5	144.6	97.70	80.31	66.32	46.52	39.27	20.18

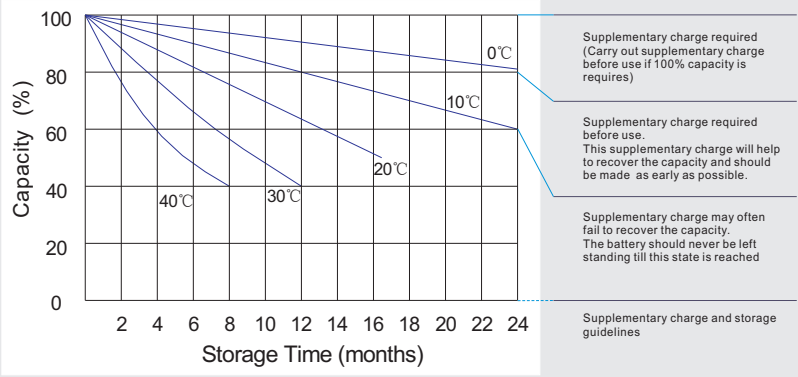
All mentioned values are average values(Tolerance±2%).



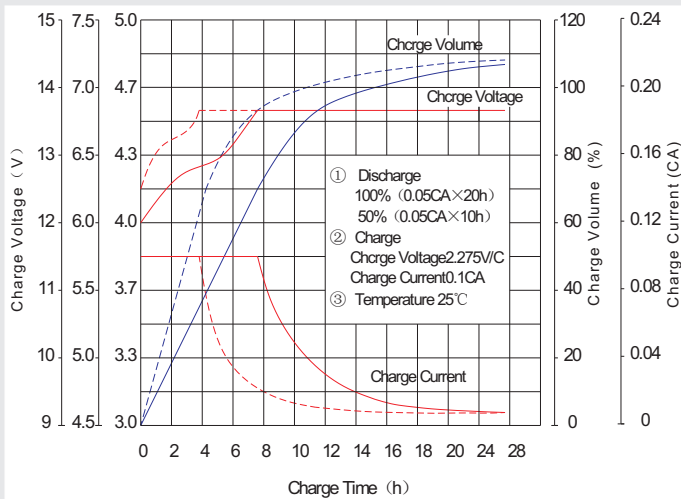
### Life characteristics of cyclic use



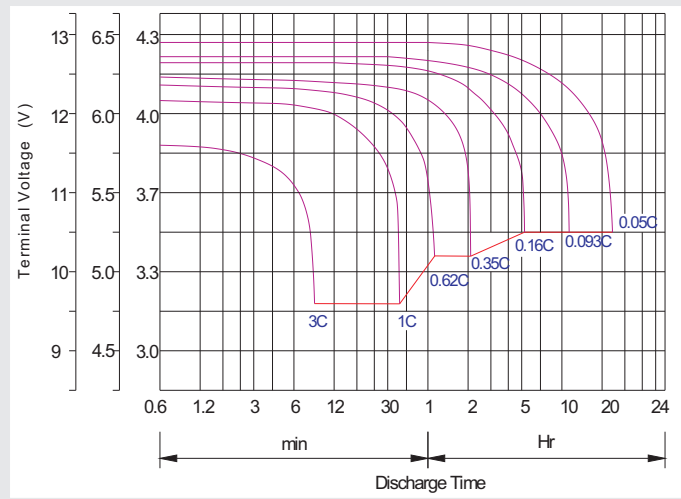
### Storage characteristic



### Charge characteristic Curve for standby use



### Discharge characteristic Curve



### Capacity Factors With Different Temperature

Battery Type		-20°C	-10°C	0°C	5°C	10°C	20°C	25°C	30°C	40°C	45°C
GEL Battery	6V&12V	50%	70%	83%	85%	90%	98%	100%	102%	104%	105%
	2V	60%	75%	85%	88%	92%	99%	100%	103%	105%	106%
AGM Battery	6V&12V	46%	66%	76%	83%	90%	98%	100%	103%	107%	109%
	2V	55%	70%	80%	85%	92%	99%	100%	104%	108%	110%

### Discharge Current VS. Discharge Voltage

Final Discharge Voltage V/cell	1.75V	1.70V	1.60V
Discharge Current (A)	(A) ≤ 0.2C	0.2C < (A) < 1.0C	(A) ≥ 1.0C

**Charge the batteries at least once every six months, if they are stored at 25°C.**

Charging Method:

Constant Voltage	-0.2Cx2h+2.4-2.45V/cellx24h, Max. Current 0.3C
Constant Current	-0.2Cx2h+0.1Cx12h
Fast	-0.2Cx2h+0.3Cx4h

Bolt	M5	M6	M8
Terminal	F3 F4 F13 F18 T25 T26	F8 F11 F12-1 F15	F5 F9 F10 F12 F14 F16
Torque	6~7N·m	8~10N·m	10~12N·m

### Maintenance & Cautions

<b>Cycle service</b>
※ Avoid battery over discharge, especially battery series connection use.
※ Charged with recommend voltage, ensure battery can be full recharged.
In general, recharge capacity should be 1.1-1.15 times discharge capacity.
※ Effect of temperature on cycle charge voltage: -4mV/°C/Cell.
※ There are a number of factors that will affect the length of cyclic service.
The most significant are depth of discharge, ambient temperature, discharge rate, and the manner in which the battery is recharged.
Generally speaking, the most important factors is depth of discharge.