

EV12-90 (12V90Ah)

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.

RITAR®

Specification

Cells Per Unit	6
Voltage Per Unit	12
Capacity	90Ah@10hr-rate to 1.80V per cell @25°C
Weight	Approx. 28.5 Kg(Tolerance±2%)
Max. Discharge Current	900 A (5 sec)
Internal Resistance	Approx. 4.8 mΩ
Operating Temperature Range	Discharge: -20°C~60°C Charge: 0°C~50°C Storage: -20°C~60°C
Normal Operating Temperature Range	25°C±5°C
Float charging Voltage	13.6 to 13.8 VDC/unit Average at 25°C
Recommended Maximum Charging Current Limit	27A
Equalization and Cycle Service	14.6 to 14.8 VDC/unit Average at 25°C
Self Discharge	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.
Terminal	Terminal F15/F12
Container Material	A.B.S. UL94-HB, UL94-V0 Optional.

MH28539

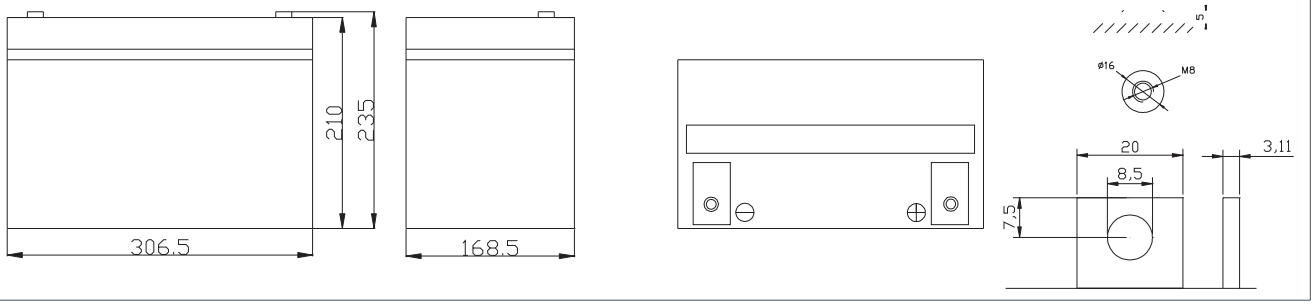
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CERTIFICATE
Postcode.:421001 is in conformity with ISO 14001:2004 Standard

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Dimensions

Unit: mm Dimension: 306.5(L)×168.5(W)×210(H)



Constant Current Discharge Characteristics: A (25°C)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
9.60V	321.8	236.9	174.8	102.3	58.50	35.68	24.07	20.01	15.95	11.51	9.37	4.96
10.0V	312.5	225.4	171.2	100.5	57.33	35.42	23.89	19.92	15.85	11.41	9.27	4.87
10.2V	303.2	217.5	168.5	98.7	55.89	35.15	23.44	19.83	15.75	11.32	9.18	4.77
10.5V	272.3	200.7	160.5	97.9	54.72	34.88	22.89	19.64	15.55	11.23	9.09	4.68
10.8V	245.7	183.0	147.9	96.3	53.10	34.25	22.51	19.18	15.43	11.04	9.01	4.63
11.1V	209.8	163.5	132.7	90.1	51.21	32.73	22.12	18.25	15.05	10.57	8.90	4.44

Constant Power Discharge Characteristics: W (25°C)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
9.60V	3395	2548	1934	1171	676.0	423.6	286.2	238.5	191.0	137.4	112.4	61.1
10.0V	3328	2470	1903	1157	674.4	422.2	285.0	238.2	189.6	136.7	111.6	60.0
10.2V	3290	2405	1889	1147	669.2	419.7	280.6	237.7	189.0	135.9	110.7	58.9
10.5V	2995	2239	1831	1152	656.0	418.4	274.4	235.5	187.2	134.7	109.6	57.8
10.8V	2728	2064	1692	1133	637.4	412.1	271.1	230.1	185.2	132.5	108.5	56.7
11.1V	2396	1884	1553	1068	615.0	394.4	266.5	219.0	180.9	126.9	107.1	55.0

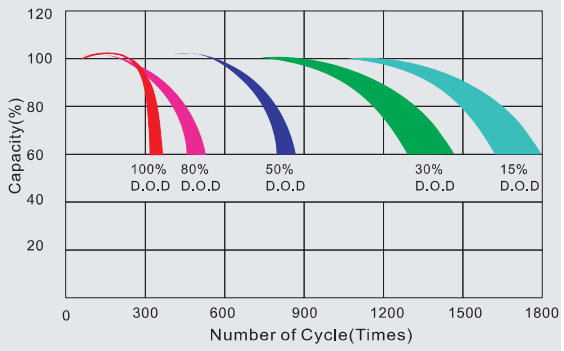
All mentioned values are average values(Tolerance±2%).

EV12-90

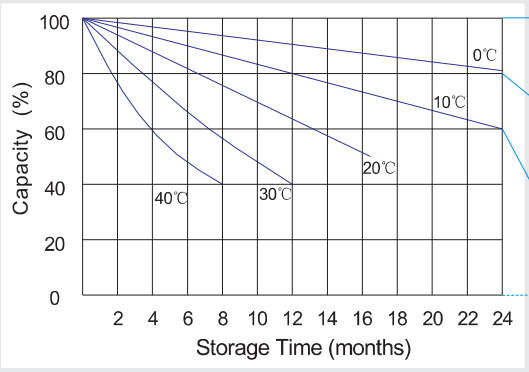
12V90Ah

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Life characteristics of cyclic use



Storage characteristic



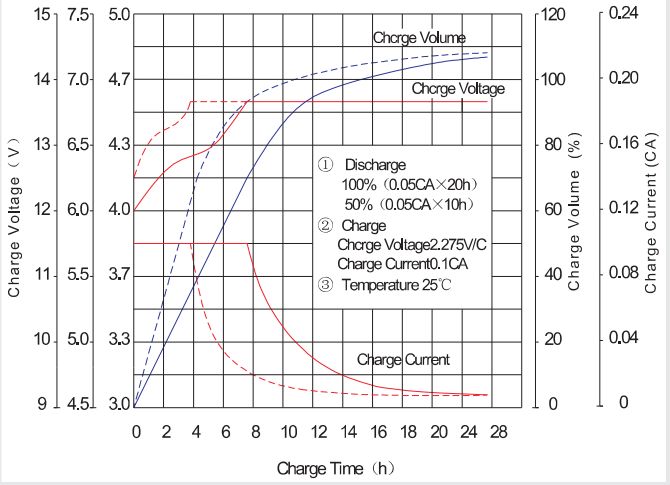
Supplementary charge required (Carry out supplementary charge before use if 100% capacity is requires)

Supplementary charge required before use. This supplementary charge will help to recover the capacity and should be made as early as possible.

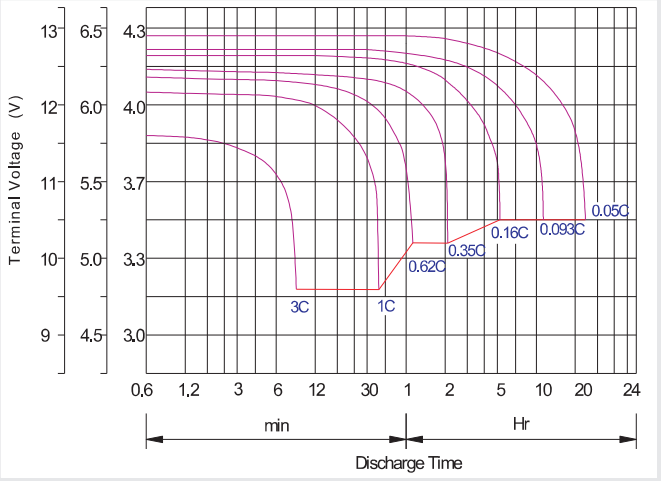
Supplementary charge may often fail to recover the capacity. The battery should never be left standing till this state is reached

Supplementary charge and storage guidelines

Charge characteristic curve for cyclic use



Discharge characteristic curve



Capacity Factors With Different Temperature

Battery Type		-20℃	-10℃	0℃	5℃	10℃	20℃	25℃	30℃	40℃	45℃
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+0.1C×12h
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

Cycle service
※ Avoid battery over discharge, especially battery sereis 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/℃/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 specking, the most important factors is depth of discharge.

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