



# RA12-160DG (12V160Ah)

RA12-160DG is GEL deep cycle battery, with 12 years floating design life, superiorly designed for frequent cyclic discharge applications under extreme temperature. By using strong grid to insure reliable performance under frequent cyclic discharge use. 400 cycles could be available at 100% DOD. Offering extra-durable cyclic performance, high efficiency of recovery, that is more suitable for solar, mobility, E-toll, marine, deep discharge UPS etc..



## Specification

Cells Per Unit	6
Voltage Per Unit	12
Capacity	160Ah@20hr-rate to 1.75V per cell @25°C
Weight	Approx. 53.0 Kg
Max. Discharge Current	1600 A (5 sec)
Internal Resistance	Approx. 6 mΩ
Operating Temperature Range	Discharge: -40°C~60°C Charge:-20°C~50°C Storage: -40°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	32A
Equalization and Cycle Service	14.2 to 14.4VDC/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 F12/F16
Container Material	A.B.S. (UL94-HB), Flammability resistance of UL94-V1 can be available upon request.



MH28539



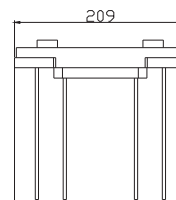
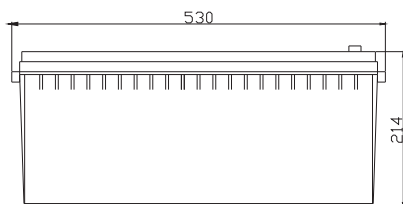
G4M20206-0910-E-16



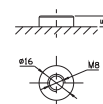
ISO9001:2000 Certificate

## Dimensions

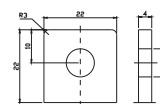
Unit: mm Dimension: 530(L)×209(W)×214(H)



Terminal F12



Terminal F16



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

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
9.60V	401.14	287.07	230.44	154.43	94.145	56.334	38.938	31.912	26.121	17.992	15.213	8.3674
10.0V	389.55	273.14	225.71	151.99	93.710	55.911	38.788	31.764	25.967	17.846	15.067	8.2153
10.2V	378.00	263.50	222.17	152.13	92.841	55.487	38.490	31.616	25.813	17.700	14.921	8.0631
10.5V	343.42	246.04	214.02	149.78	91.972	55.063	38.341	31.321	25.506	17.554	14.774	7.9110
10.8V	313.58	227.00	199.58	144.58	89.799	54.075	37.297	30.582	25.045	17.261	14.628	7.7589
11.1V	270.82	205.23	181.07	136.74	85.309	51.675	35.656	29.105	23.970	16.530	14.189	7.3025

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

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
9.60V	4149.1	3057.2	2534.8	1760.5	1087.9	663.99	463.36	380.39	311.62	214.83	181.80	100.33
10.0V	4067.3	2963.6	2494.1	1740.3	1085.3	660.47	463.52	379.90	310.82	213.80	180.65	98.583
10.2V	4020.9	2885.3	2466.1	1744.9	1076.9	656.49	461.50	379.08	309.76	212.40	179.05	96.757
10.5V	3703.6	2718.7	2379.9	1720.9	1067.2	651.72	459.71	375.54	306.07	210.64	177.29	94.932
10.8V	3412.4	2535.6	2225.3	1665.6	1047.5	643.41	447.19	366.98	300.54	207.13	175.54	93.106
11.1V	3031.8	2319.1	2026.2	1579.4	1002.7	619.51	427.87	349.26	287.63	198.36	170.27	87.629

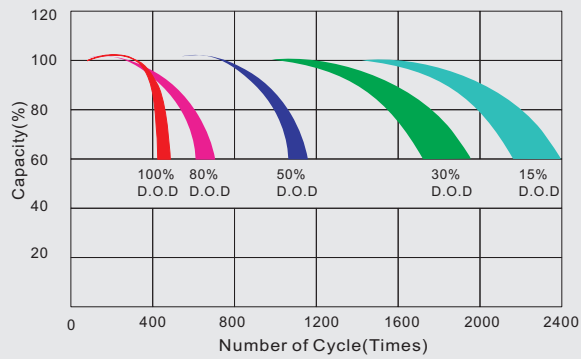
All mentioned values are average values.

# RA12-160DG

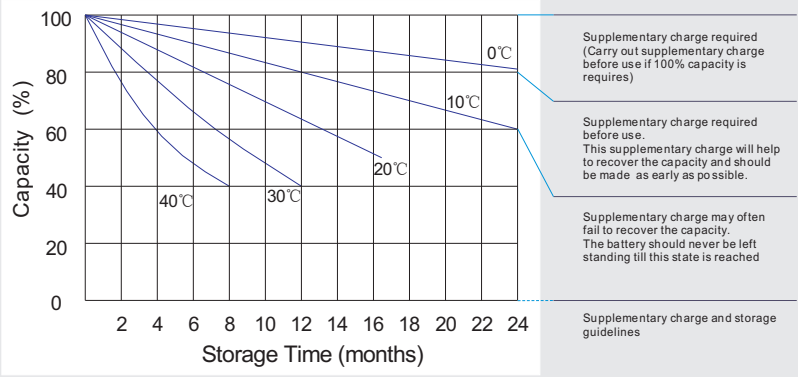
12V160Ah



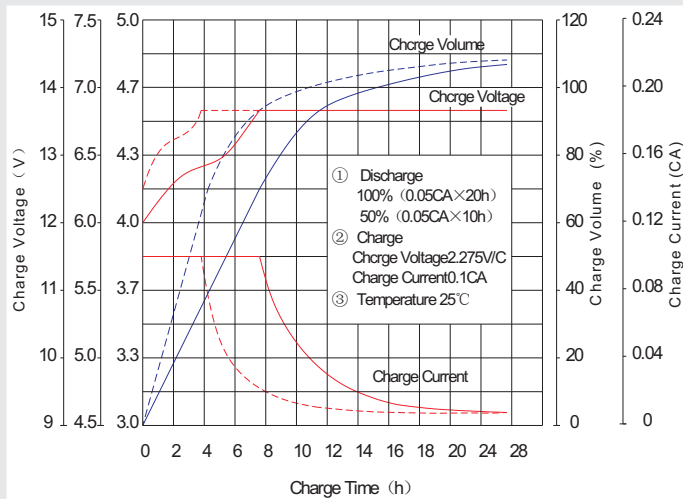
## Life characteristics of cyclic use



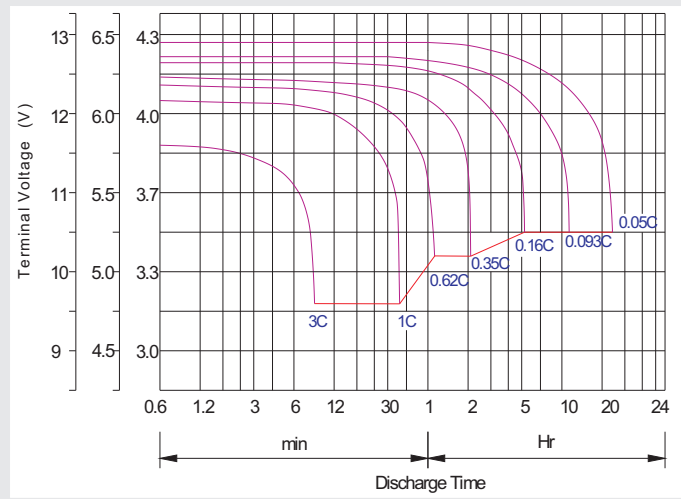
## Storage characteristic



## Charge characteristic curve for cyclic 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

## Maintenance & Cautions

### Cycle service

- ※ 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.

**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 0.3CA
Constant Current	-0.2Cx2h+0.1CAx12h
Fast	-0.2Cx2h+0.3CAx4.0h