

HR12-120 (12 volt 120 watts/cell)

HR12-120 is a high rate battery with 10 years floating design life. It meets with IEC and JIC standards. With heavy duty grid, thick plates and special additives, HR series battery has a long and reliable service life.

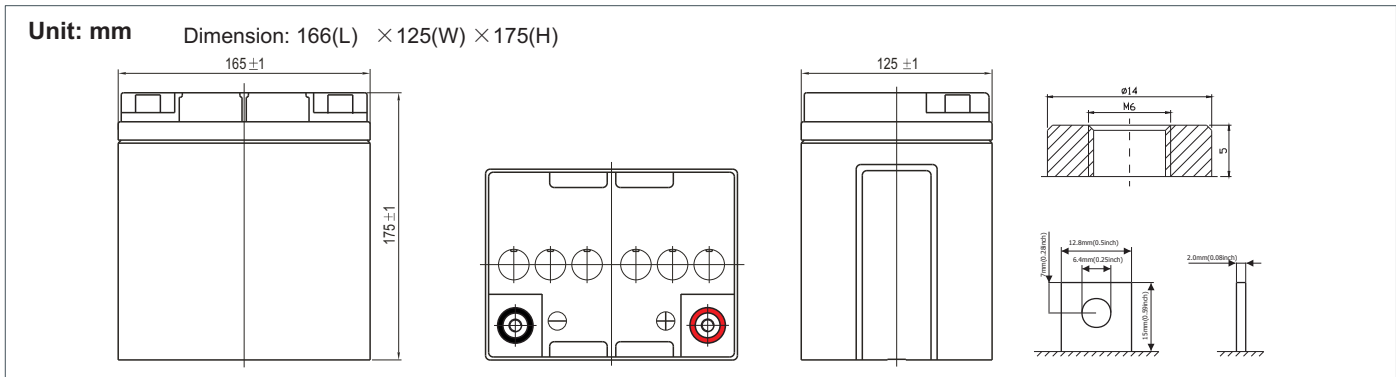


Specification

Cells Per Unit	6
Voltage Per Unit	12
Capacity	120 watts/cell @ 15 min to 1.67V per cell @25°C
Weight	Approx. 9.3 Kg
Max. Discharge Current	280 A (5 sec)
Internal Resistance	Approx. 9 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	13.7 to 13.9 VDC/unit Average at 25°C
Recommended Maximum Charging Current Limit	8.4 A
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	F7/F11
Constrainer Material	A.B.S. (UL94-HB) , Flammability resistance of UL94-V2 can be available upon request.

MH28539
G4M20206-0910-E-16
ISO9001:2000 Certificate

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	108.2	71.66	56.17	31.86	19.52	11.24	7.638	6.112	5.076	3.233	2.799	1.571
10.0V	104.3	69.87	54.37	31.45	18.98	11.01	7.497	6.028	4.990	3.220	2.770	1.514
10.2V	98.1	66.41	52.86	30.97	18.81	10.90	7.430	5.969	4.936	3.191	2.728	1.486
10.5V	88.21	62.10	49.86	30.12	18.44	10.75	7.364	5.911	4.877	3.163	2.714	1.442
10.8V	79.03	57.91	47.04	29.12	18.10	10.67	7.278	5.882	4.825	3.150	2.669	1.357
11.1V	69.15	53.09	43.40	28.02	17.62	10.24	7.136	5.830	4.776	3.125	2.627	1.335

Constant Power Discharge Characteristics : W(25C) chart

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
9.60V	1138	762.2	736.5	364.7	226.6	131.1	89.28	72.33	60.09	38.71	33.53	18.83
10.0V	1108	746.4	720.0	360.9	223.3	130.0	89.11	72.16	59.79	38.56	33.22	18.16
10.2V	1054	716.8	698.4	357.8	221.6	129.2	88.77	71.56	59.20	38.27	32.90	17.82
10.5V	962	687.3	667.8	350.5	218.6	128.2	88.41	70.91	58.50	37.95	32.56	17.32
10.8V	868	642.9	639.7	342.2	215.1	127.1	87.37	70.65	57.89	37.78	32.06	16.31
11.1V	765	598.6	603.3	332.8	211.1	122.7	85.67	69.94	57.34	37.52	31.59	16.05

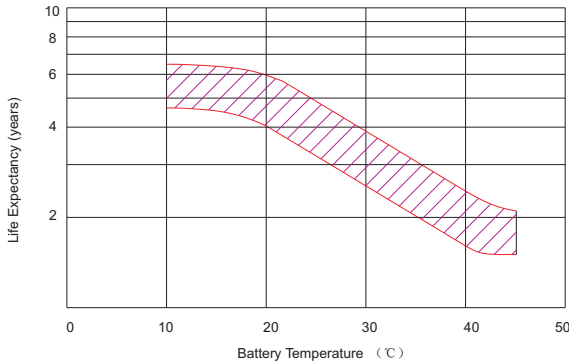
All mentioned values are average values.

HR12-120

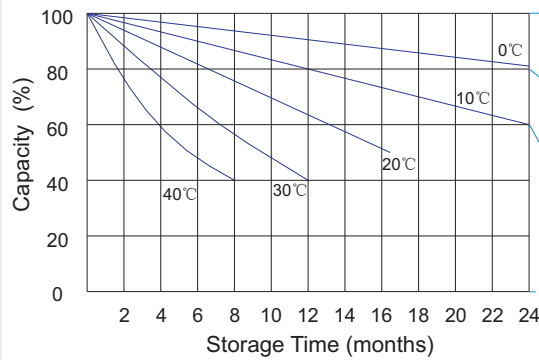
(12 volt 120 watts/cell)



Effect of temperature on long term float life



Storage characteristic



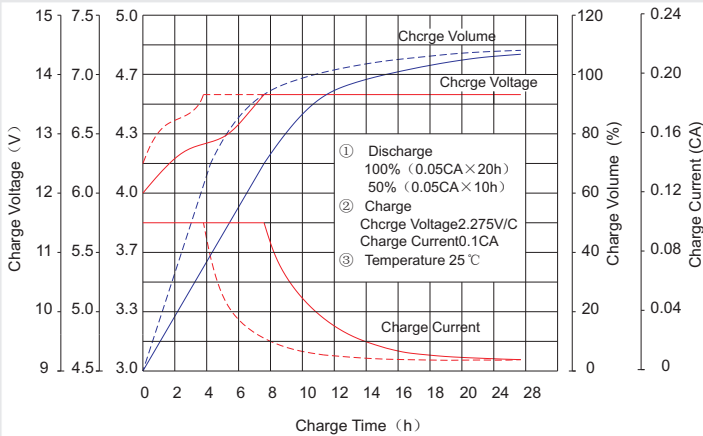
Supplementary charge required (Carry out supplementary charge before use if 100% capacity is required)

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

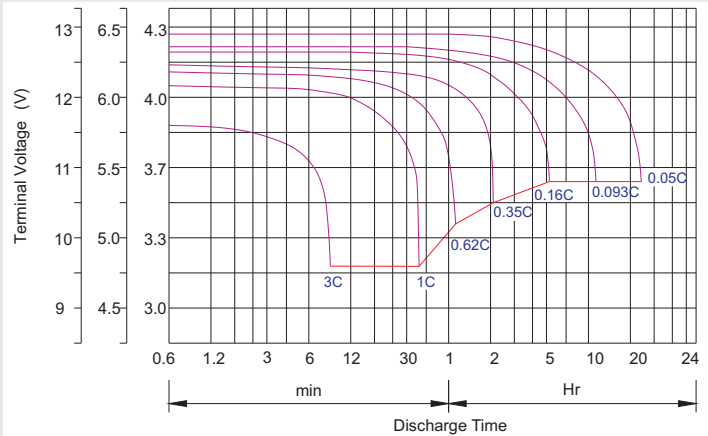
Supplementary charge may often fail to recover the capacity. The battery should never be left standing till this state is reached

Supplementary charge and storage guidelines

Charge characteristic Curve for 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

Maintenance & Cautions

Float Service:
※ Every month, recommend inspection every battery voltage.
※ Every three months, recommend equalization charge for one time.
Equalization charge method:
Discharge: 100% rate capacity discharge.
Charge: Max. current 0.3CA, constant voltage 2.4-2.45V/Cell charge 24h.
※ Effect of temperature on float charge voltage: -3mV/ °C/Cell.
※ Length of service life will be directly affected by the number of discharge cycles, depth of discharge, ambient temperature and charging voltage.

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