



# RA12-90H

(12V90.0Ah)  
(350w/cell)

HR (High Rate) series is especially designed for heavy load discharge applications with 10 years design life in float service. By using strong grids and specially designed active material the HR series offers stable performance during high current discharge requirements. The HR series offers 30% more power output than the standard range. Suitable for UPS/EPS where high current loads are required.



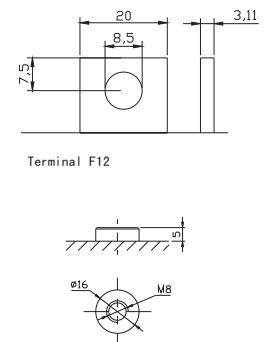
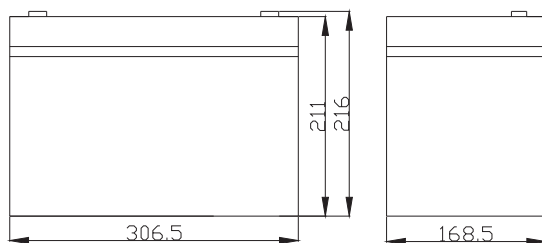
## Specification

Cells Per Unit	6
Voltage Per Unit	12
Capacity	350W@15min-rate to 1.67V per cell @25°C
Weight	Approx. 29.0 Kg(Tolerance ± 2%)
Max. Discharge Current	900A (5 sec)
Internal Resistance	Approx. 5 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	27.0 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	Faston tabF12/F15
Container Material	A.B.S. UL94-HB, UL94-V0 Optional.



## Dimensions

Unit: mm Dimension: 306.5(L) × 168.5(W) × 235(H)



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

F.V /Time	5MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
9.60V	340.7	279.5	252.7	185.4	147.3	105.3	58.95	47.00
10.0V	330.9	264.8	251.4	181.1	138.7	101.4	57.79	45.37
10.2V	321.1	258.4	238.1	174.0	135.0	99.6	56.80	44.56
10.5V	288.3	248.8	217.5	165.2	128.5	96.0	55.47	43.73
10.8V	260.2	239.0	194.7	157.7	124.4	92.0	54.16	42.98
11.1V	222.2	220.0	179.2	150.3	120.0	88.9	52.49	41.25

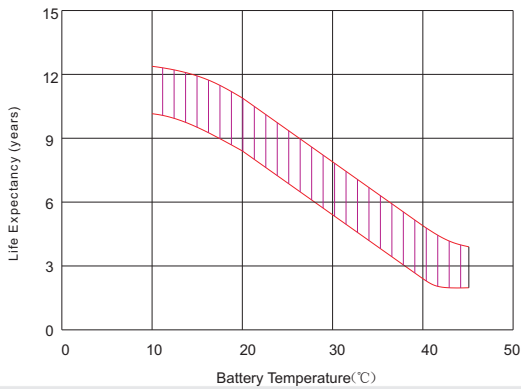
### Constant Power Discharge Characteristics : W(25°C)

F.V /Time	5MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
9.60V	3595	2966	2808	2160	1626	1174	659.1	525.8
10.0V	3524	2848	2787	2122	1547	1142	644.9	510.6
10.2V	3483	2772	2660	2059	1517	1125	640.0	505.1
10.5V	3171	2710	2475	1995	1463	1098	636.6	502.3
10.8V	2888	2602	2427	1912	1418	1061	625.8	498.5
11.1V	2537	2464	2379	1828	1386	1030	614.2	483.7

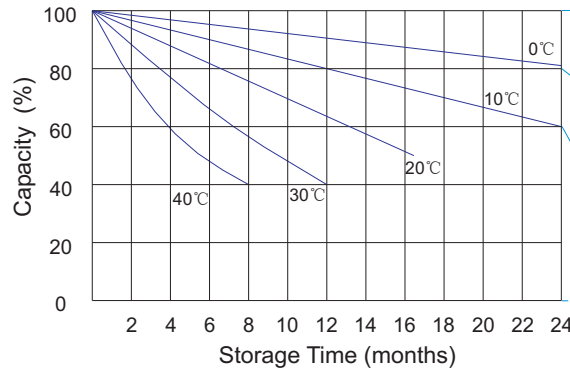
All mentioned values are average values (Tolerance ± 2%).



### Effect of temperature on long term float life



### Storage characteristic



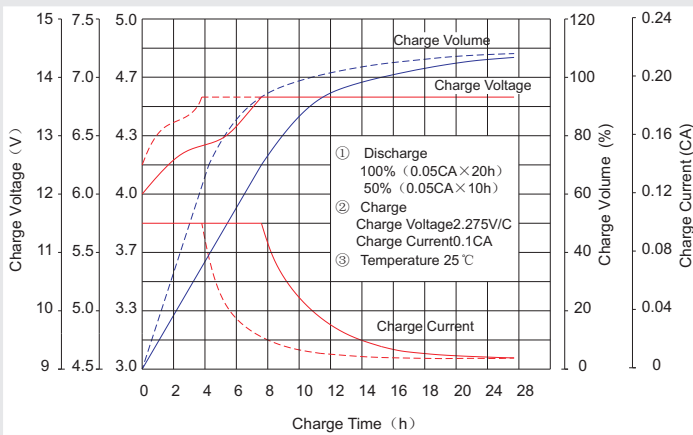
Supplementary charge required (Carry out supplementary charge before use if 100% capacity is requires)

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

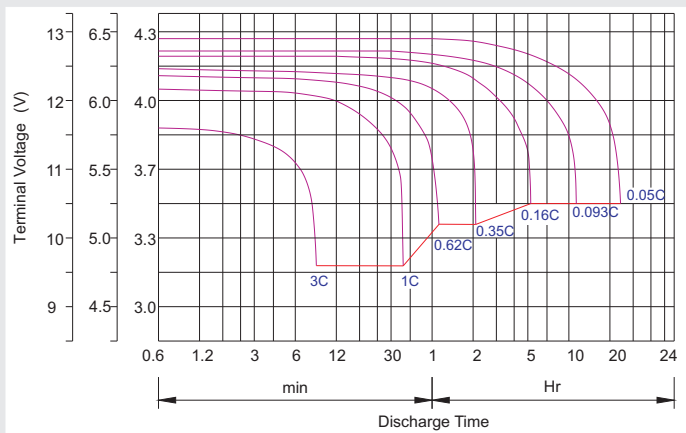
Supplementary charge may often fail to recover the capacity. The battery should never be left standing till this state is reached

Supplementary charge and storage guidelines

### Charge characteristic Curve for 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

#### 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.