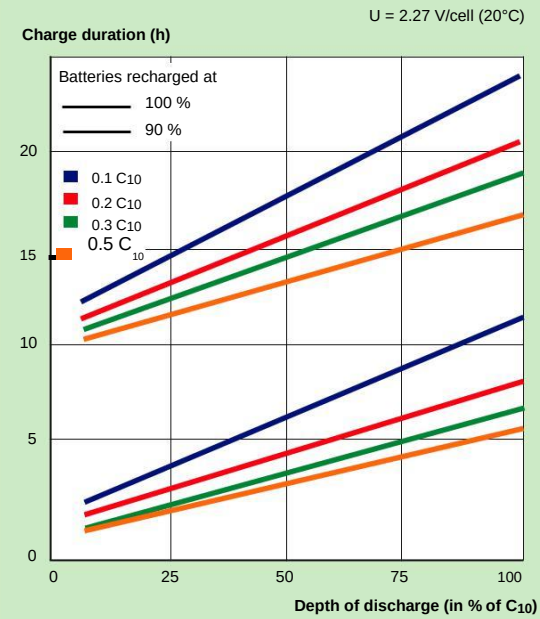
RELIABILITY Power Systems

HIGH PERFORMANCE SERIES
VR AGM BATTERIES

HIGH PERFORMANCE SERIES BATTERIES \

Charging Characteristics

Figure 1. Charging at constant voltage with limited current



RELIABILITY High Performance Series VR AGM Batteries are specially designed and manufactured to support Critical Industrial Applications.
The SPA Range is available from 2.5AH to 250AH capacities in 2V, 6V and 12V versions. The RELIABILITY High Performance Series AAGM Batteries should be charged using constant voltage after the initial limitation of the charge current. *Figures 1* and *2* show typical recharge times following various depths of discharge and constant voltage settings of 2.27 and 2.40 volts/cell, respectively, at 20°C ambient temperature.

A higher initial current limit setting will not give a corresponding reduction in charging time.

Chargers using voltage settings of more than 2.27 volts/cell must have a restriction of the charge duration time.

Example:
A battery which has been discharged to 25% of its available capacity will require approximately 6 hours to reach 90% charged state with 2.27 volts/cell and an initial current limit of 0.2 x C_{10}.

Note: For constant voltage settings of 2.40 volts/cell, the initial current setting must be restricted to 0.3 x C_{10} maximum.

Figure 2. Charging at constant voltage with limited current

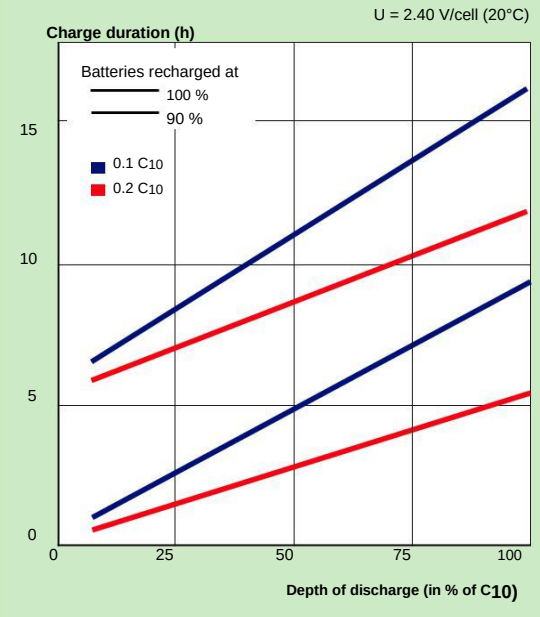
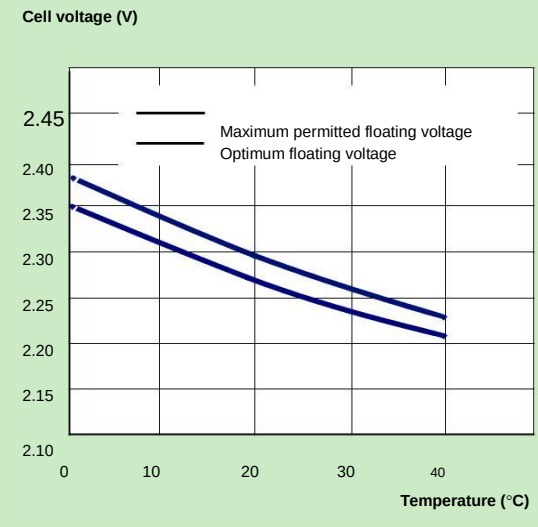


Figure 3. Floating voltage as a function of temperature



Temperature and Float Voltage

Figure 3 shows the relationship between recommended charging float voltage levels and ambient temperatures.

At 20°C the recommended float charge voltage is 2.27 volts/cell. For applications which experience fluctuation of ambient temperature it is recommended that an automatic temperature compensation of float charge voltage is considered.

Internal Resistance and Short-Circuit Current

Table 2. Internal resistance and short-circuit current for RELIABILITY High Performance Batteries

Battery type	Ri (mΩ /block)	Ri (mΩ /cell)	ISC (A)
R4 12/32	8.00	1.33	1500
R4 12/42	7.00	1.17	1700
R4 12/55	5.80	0.97	2050
R4 12/80	4.20	0.70	2850
R4 06/115	1.60	0.53	3800
R4 06/165	1.30	0.43	4650
R4 02/205	0.35	0.35	5750
R4 02/255	0.28	0.28	7150
R4 02/305	0.22	0.22	9150
R4 02/355	0.18	0.18	11150
R4 02/405	0.15	0.15	13400

Table 3. Internal resistance and short-circuit current for RELIABILITY High Performance Batteries

Battery type	Ri (mΩ /block)	Ri (mΩ /cell)	ISC (A)
R5 12/07	30.0	5.00	400
R5 06/10	9.40	3.13	650
R5 12/10	18.8	3.13	650
R5 12/17	13.0	2.17	900
R5 12/24	10.0	1.67	1200
R5 12/25	10.0	1.67	1200
R5 12/40	7.50	1.25	1600
R5 12/50	6.50	1.08	1850
R5 12/60	5.80	0.97	2050
R5 12/90	4.00	0.67	3000
R5 06/125	1.50	0.50	4000
R5 06/185	1.20	0.40	5000
R5 02/235	0.31	0.31	6500
R5 02/305	0.24	0.24	8350
R5 02/375	0.19	0.19	10550
R5 02/425	0.17	0.17	11800
R5 02/500	0.14	0.14	14350

Table 4. Internal resistance and short-circuit current for RELIABILITY High Performance Batteries

Battery type	Ri (mΩ /block)	Ri (mΩ /cell)	ISC (A)
R6 12/08	26.0	4.33	450
R6 06/11	9.00	3.00	650
R6 12/27	10.0	1.67	1200
R6 12/28	9.50	1.58	1250
R6 12/45	7.00	1.17	1700
R6 12/55	6.20	1.03	1950
R6 12/80	5.50	0.92	2200
R6 12/110	4.00	0.67	3000
R6 06/165	1.50	0.50	4000
R6 06/200	1.20	0.40	5000
H7 12/07	25.0	4.17	450
H7 12/10	17.0	2.83	700

Table 5. Internal resistance and short-circuit current for RELIABILITY High Performance

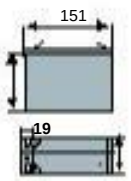
Battery type	Ri (mΩ /block)	Ri (mΩ /cell)	ISC (A)
R7 6088	1.85	0.62	3800
R7 6106	1.55	0.52	4500
R7 6137	1.20	0.40	5900
R7 6155	1.05	0.35	6600
R7 6210	0.77	0.26	8900
R7 6270	0.62	0.21	11400
R7 4328	0.35	0.18	13900
R7 4355	0.30	0.15	15000

Table 6. Internal resistance and short-circuit current for RELIABILITY High Power Batteries

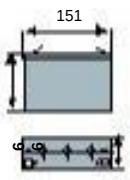
Battery type	Ri (mΩ /block)	Ri (mΩ /cell)	ISC (A)
RPA 12/35	8.80	1.47	1300
RPA 12/50	7.40	1.23	1700
RPA 12/60	6.20	1.03	2100
RPA 12/75	4.70	0.78	2700
RPA 12/100	3.60	0.60	3600
RPA 12/130	3.10	0.52	4500

Dimensions

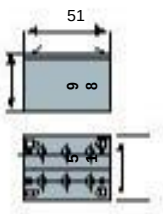
R5 12/07
R6 12/08
H7 12/10



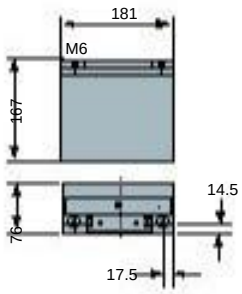
R5 06/10
R6 06/11



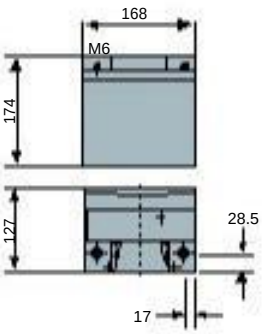
R5 12/10



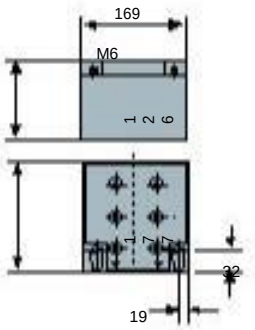
R5 12/17



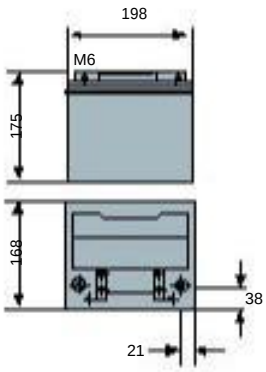
R5 12/25
R6 12/28



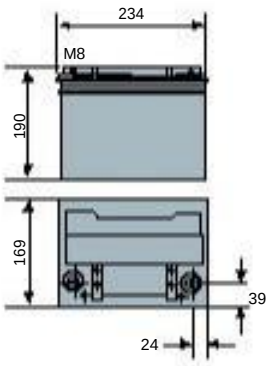
R5 12/24
R6 12/27



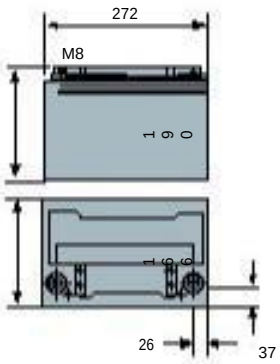
R4 12/32
R5 12/40
R6 12/45



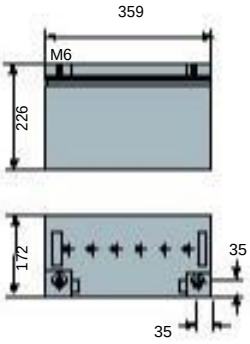
R4 12/42
R5 12/50
R6 12/55



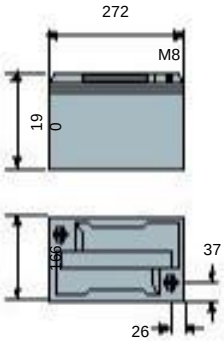
R4 12/55
R5 12/60
R6 12/80



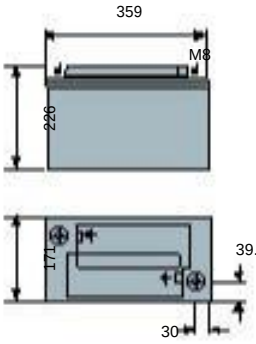
R4 12/80
R5 12/90
R6 12/110



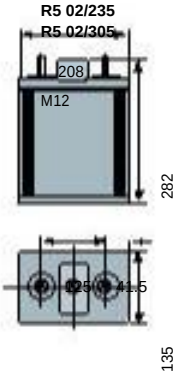
R4 06/115
R5 06/125
R6 06/165



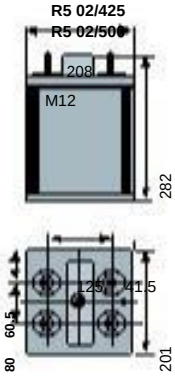
R4 06/165
R5 06/185
R6 06/200



R4 02/205
R4 02/255
R5 02/235
R5 02/305



R4 02/305
R4 02/355
R4 02/405
R5 02/375
R5 02/425
R5 02/500



Reliability Power Systems - Australia

Global Sales Management

109 Pitt St.' Sydney NSW 2000, Australia
Tel: +61 2 9016 2886, Fax: +61 2 9016 2887
Info@Reliability-Power.com

Production Management

Newmarket Road, Windsor, Brisbane Qld 4030, Australia
Tel: +61 7 3041 4223, Fax: +61 7 3041 4211

Production@Reliability-Power.com

Reliability Power Systems - Worldwide

Reliability Power Systems - Canada
2 County Court Blvd, 4th Floor
Brampton, ON L6W 3W8 - Canada
Reliability.Canada@Reliability-Power.com

Reliability Power Systems - Europe
New Summer St., Birmingham,
West Midlands B19, United Kingdom
Reliability.Europe@Reliability-Power.com

Reliability Power Systems - MENA
CTS/Ibrahim Khalil Makkawi Est.
POB 127138, Jeddah 21352, Saudi Arabia
Reliability.MiddleEast@Reliability-Power.com

Reliability Power Systems – South Asia
Protective Systems (Pvt) Ltd.
Satellite Town, Rawalpindi/Islamabad, Pakistan
Reliability.SouthAsia@Reliability-Power.com

Reliability Power Systems - China
Sci & Tech. Industrial Park, Dongguan City,
Guangdong, China
Reliability.China@Reliability-Power.com

Reliability Power Systems – Singapore (Training Center)
Level 30, 6 Battery Road
Singapore 049909
Reliability.Academy@Reliability-Power.com