



GFMJ-1000 10 OPzV 1000



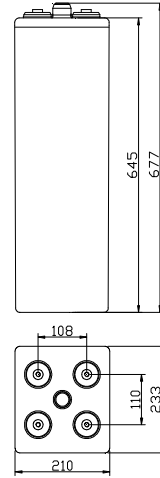
Application:

- Solar energy, wind energy
- Electric power, nuclear power
- Communication
- Ship, maritime affairs
- UPS, medical facilities and emergency lighting
- Situation with high environmental protection and energy-saving

Features of performance application

- ✚ Designed service life of 20 years
- ✚ High cycle service life
- ✚ Better temperature resistance performance
- ✚ Excellent deep cycle performance
- ✚ Superior low current discharge performance
- ✚ Stronger constant power discharge capability
- ✚ Better charge acceptability
- ✚ Better safety performance and reliability
- ✚ Modular and personified installation design
- ✚ High performance/price ratio and low yearly operating cost
- ✚ Eco-friendly, cycle application

Rated voltage	2 V
Capacity@ 25°C(77°F)	1000Ah @ 10hr to 1.80V per cell
Weight	About 80kg (176 lb)
Reference internal resistance (charged)	About 0.26mΩ@ 25°C(77°F)
Short-circuit current	About 7885A (0.1S reference value)
Max discharge current	3000A (5sec)
Self-discharge	< 20% 180 days @ 25°C (77°F)
Temperature range	Application: -20°C ~ 50°C (-4°F ~ 122°F) Storage: 0°C ~ 20°C (32°F ~ 68°F) Recommendation: 20°C ~ 25°C (68°F ~ 77°F)
Max charge current	200A
Charge voltage @ 25°C(77°F)	Float charge: 2.23V, average charge: 2.35V Temperature compensation factor: -3 mV/°C
Terminal output	M10 copper terminal (HPb59-1)
Recharge time	See figure 2



Structure features of Shuangdeng GFMJ series VRLA gel battery:

- Electrolyte: primary material adopts Germany gas silicon dioxide, the material will be the thin collosol state when it's injected initially, and it can fill the whole plate space of battery, and each part of plate can react evenly. The flooded electrolyte design can avoid dry up of battery when it's in high temperature and over charged, the thermal capacity is big and heat-elimination is fine, accordingly, thermal runaway can be avoided. The electrolyte is in the gel state in finished battery without flowing, accordingly, leakage and lamination can be avoided.
- Plate: positive plate adopts tubular type plate which can effectively prevent active substance falling, the positive plate frame is molded with multi-component alloy, the crystal particle of alloy structure is tiny and dense, the corrosion-resisting performance is fine and service life is long. Negative plate adopts pasted plate, the grid adopts radiated structure which enhances utilization ratio of active substance and discharge capability of strong current, and the charge reception capability is strong.
- Battery case: it's made of ABS material, corrosion prevention is fine, strength is high, and appearance is beautiful, it can be sealed with lid reliably which can prevent potential leakage risk.
- Separator: adopt special micro-pore PVC-SiO₂ separator from Europe AMER-SIL Company, the porosity of separator is big and resistance is low. It has bigger electrolyte storage space.
- Terminal sealing: the built-in copper core lead-base terminal post has stronger current carrying capacity and corrosion resistance. The unique double sealing structure of terminal post can effectively avoid leakage, to guarantee reliability of terminal post sealing.
- Safety valve: adopt Germany technology, constant opening and closing valve, high reliability, the accumulator case expansion, damage and electrolyte dry up can be avoided.



Execution standard:

- IEC60896-21/22 DIN40742
- BS EN 61427-2002
- YD/T 1360-2005
- Q/321284KCC 03-2006

Authentication and certificate:

- Certificate of Qualification on Perfecting Measurement & Measuring System**
- GB/T19022-2003
- ISO10012:2003、IDT
- Quality Management System Authentication**
- GB/T19001-2000
- NO.03006Q10002R0M-2
- Environmental Management System Authentication**
- ISO 14001:2004
- NO.010607E2024R1M-2
- Occupational Health Management System Authentication**
- GB/T28001-2001
- NO.010607S10147R0M-2
- Product authentication:**
- YD/T1360-2005
- NO.030074640567R1M
- CE authentication**
- EN 61000-6-3:2001+A11:2004
- EN 61000-6-1:2001
- National Industrial Product Production License**
- XK06-044-00012
- Product Quality Test Free Certificate (2006)GM(321630488)**
- Export product quality license**

Discharge current at different final voltages and different discharge rates unit: A (25°C, 77°F)

	5min	10min	15min	30min	45min	1hr	1.5hr	2hr	3hr	4hr	5hr	8 hr	10 hr	20hr	100 hr	120hr
1.90V	855	749	504	490	470	390	310	275	215	180	154	107	89	46.38	12.10	10.26
1.85V	902	787	588	550	498	430	340	295	228	190	162	112	93	51.01	12.74	10.8
1.80V	966	953	812	700	560	520	430	332	250	204	173	120	102	53.56	13.18	11.17
1.75V	1005	972	931	780	621	560	473	347	260	210	176	122	103	55.70	13.51	11.4

Discharge power at different final voltages and different discharge rates unit: W (25°C, 77°F)

	5min	10min	15min	30min	45min	1hr	1.5hr	2hr	3hr	4hr	5hr	8 hr	10 hr	20hr	100 hr	120hr
1.90V	1620	1404	776	696	661	626	563	500	411	347	298	217	188	92.76	24.20	20.52
1.85V	1674	1462	895	781	721	661	613	565	430	386	331	237	204	101.0	25.23	21.38
1.80V	1776	1753	1284	1138	1039	940	813	685	547	447	378	267	227	105.0	25.83	21.89
1.75V	1837	1778	1480	1288	1177	1065	905	745	579	473	395	271	229	107.5	26.07	22.10



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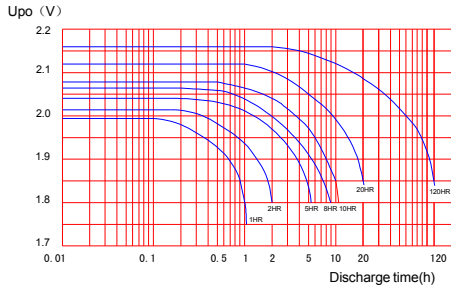


Figure 1 Discharge characteristic curve (20°C)

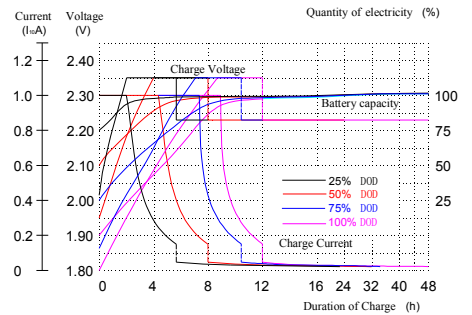


Figure 2 Constant voltage charge characteristic curve

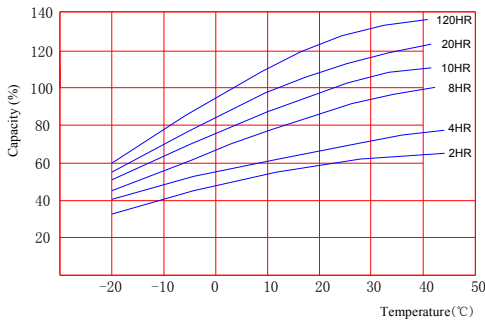


Figure 3 Relation curves between capacity and temperature

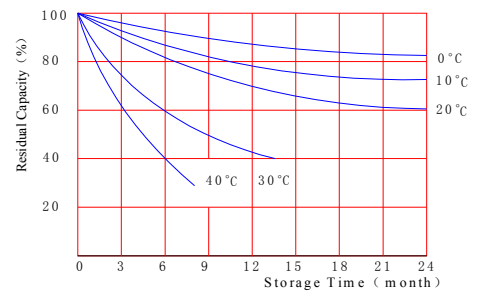


Figure 4 Self-discharge characteristic curve

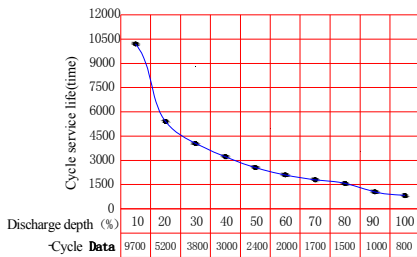


Figure 5 Relation curve between discharge depth and cycle service life

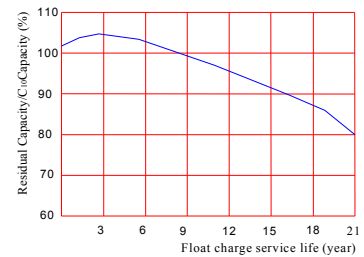


Figure 6 Relation curve between Float charge service life and residual capacity

Remark: a) test circumstances: 20-30°C, relative humidity is 50~80percent;
 b) charge mode: electricity of charge is equal to 105~115percent of discharge
 c) residual capacity is 80 percent C₁₀

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Shuangdeng Group promises to provide excellent engineering service for customers, including product solution, installation design and on-site maintenance.

The above data are only taken as reference instead of inspection standard. Additional notification won't be available for parameter change due to improvement and regulation of product. Inspection shall be performed in accordance with standards.

We must make a statement, when the battery service life and safe operating performance is confirmed, the test condition will be stricter; accordingly, the battery shall not be used in these conditions, because it's difficult for battery to reach expected service life.