



# GFMJ-420 6 OPzV 420



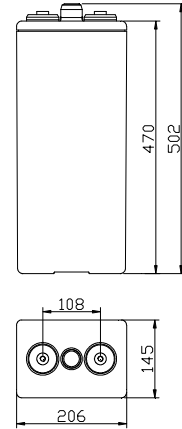
### Application:

- 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)	420Ah @ 10hr to 1.80V per cell
Weight	About 34.5kg (75.9 lb)
Reference internal resistance (charged)	About 0.38mΩ@ 25°C(77°F)
Short-circuit current	About 5395A (0.1S reference value)
Max discharge current	1260A (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	84A
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-SiO<sub>2</sub> 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	363	313	250	234	210	174	130	117	91	75	64	47	39	19.67	5.13	4.35
1.85V	420	368	303	260	223	191	143	128	97	80	68	49	41	21.63	5.4	4.58
1.80V	432	412	384	318	245	222	181	141	105	86	74	52	43	22.71	5.61	4.76
1.75V	450	445	442	348	258	236	199	146	109	89	76	53	45	23.61	5.78	4.90

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	718	612	393	358	317	275	246	217	171	142	122	89	77	39.34	10.26	8.70
1.85V	749	638	429	382	348	313	278	242	190	157	135	96	83	42.83	10.69	9.07
1.80V	787	750	626	539	480	420	353	286	223	183	154	108	90	44.51	11.00	9.33
1.75V	814	806	715	599	534	469	389	308	234	191	159	110	93	45.57	11.16	9.46



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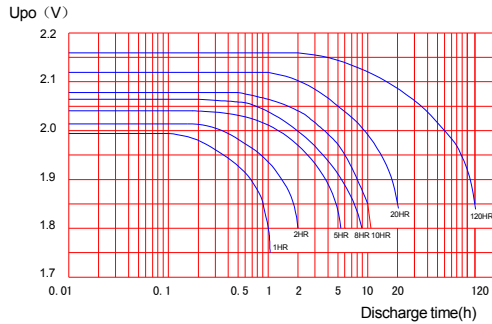


Figure 1 Discharge characteristic curve (20°C)

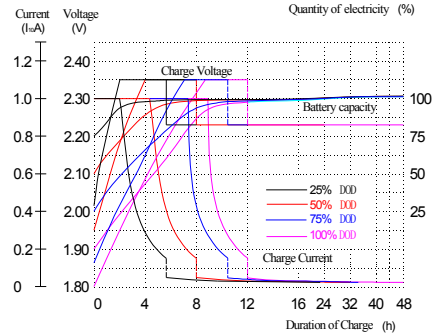


Figure 2 Constant voltage charge characteristic curve

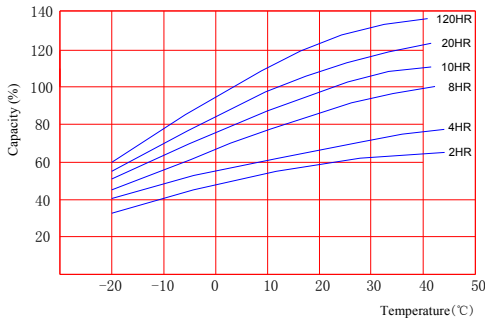


Figure 3 Relation curves between capacity and temperature

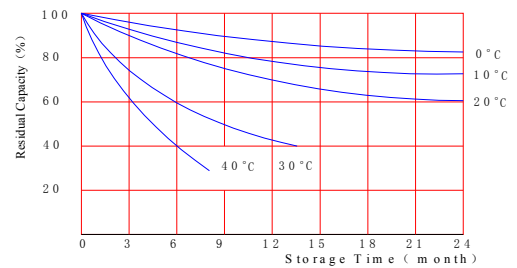


Figure 4 Self-discharge characteristic curve

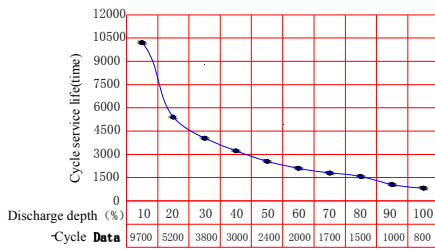


Figure 5 Relation curve between discharge depth and cycle service life

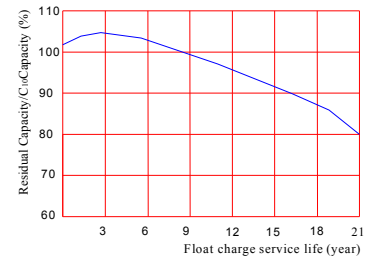


Figure 6 Relation curve between float charge service life and residual capacity

- 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 C<sub>10</sub>

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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.