

# GFM

## Series VRLA Battery

### GFM-3000



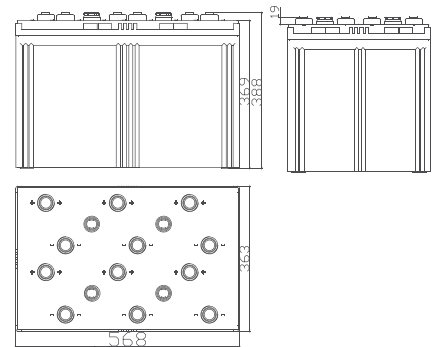
### Main Applications

- ▶ Backup power for telecom and signal system
- ▶ Backup power for electric system and nuclear plants
- ▶ Storage for solar, wind and hydroelectricity energy
- ▶ Backup power for military and maritime equipment
- ▶ Backup power for UPS, emergency lighting

### Benefits

- ▶ Reduce operational cost
- ▶ Excellent deep cycling performance
- ▶ Reduce CO<sub>2</sub> emission
- ▶ Long life

### Dimensions



### Technical Parameters

Nominal Voltage	2 V
Capacity	3000 Ah @ 10hr to 1.80 V @ 25°C(77°F)
Weight	180 kg (396.8 lbs)
Dimensions	Length: 568 mm (22.36 in) Width: 363 mm (14.29 in) Height: 369 mm (14.53 in) Total height: 388 mm (15.28 in)
Internal Resistance (full charged)	0.17 mΩ
Short-circuit Current	28000 A
Self Discharge @25°C(77°F)	Less than 3% after 30 days storage
Operating Temperature Range	Discharge: -40°C ~ 50°C(-40°F ~ 122°F) Charge: -20°C ~ 45°C(-4°F ~ 113°F) Storage: -20°C ~ 40°C(-4°F ~ 104°F)
Recommended Operating Temperature	15°C ~ 25°C (59°F ~ 77°F)
Recommended Charging Current	450 A
Charging Voltage @25°C(77°F)	Float: 2.23 V/cell Equalize: 2.35 V/cell
Terminal	M8
Container Materials	ABS/ABS V0 (Optional)
Capacity Affected by Temperature(G <sub>10</sub> )	106% @ 40°C(104°F) 85% @ 0°C(32°F) 60% @ -20°C(-4°F)
Design life @25°C(77°F)	15 years

### Certification :

- ISO9001
- ISO14001
- ISO18001
- UL
- CE

### Technical Features

- ▶ Best performance for charge acceptability
- ▶ Excellent capacity retention rate
- ▶ Excellent capacity recovery performance
- ▶ Long life design for cyclic or float application



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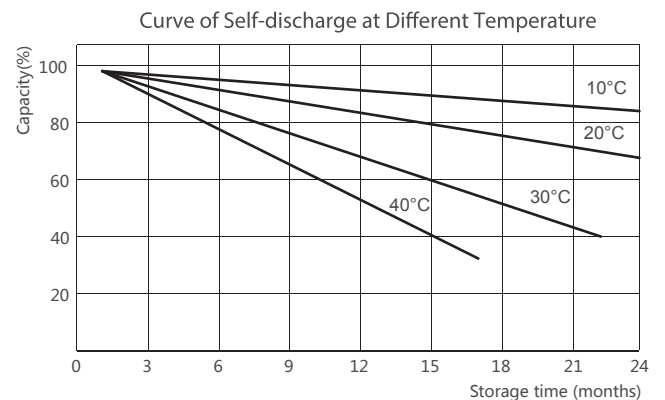
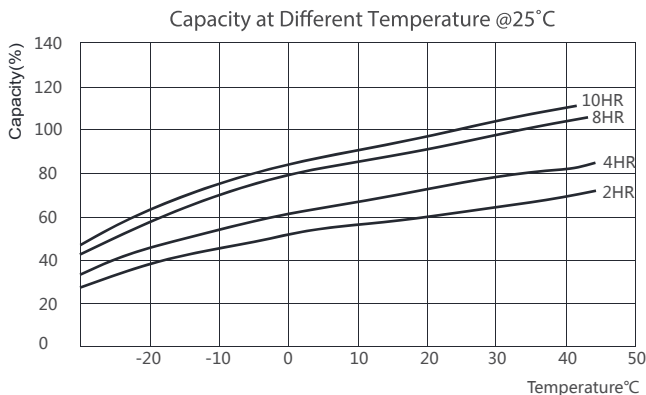
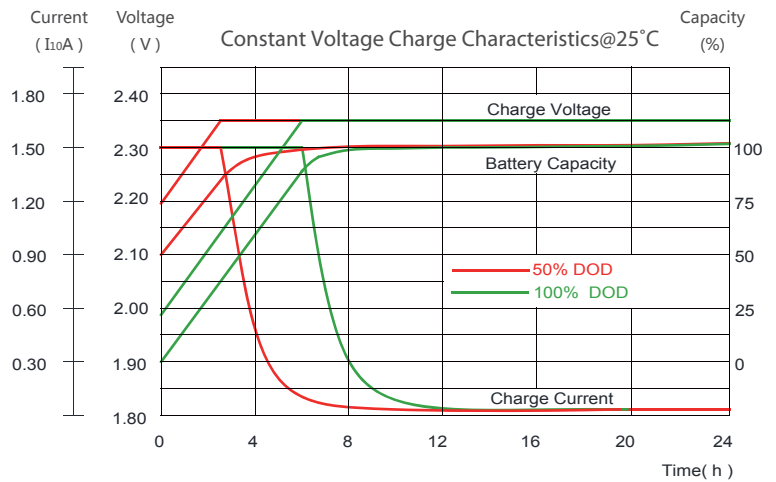
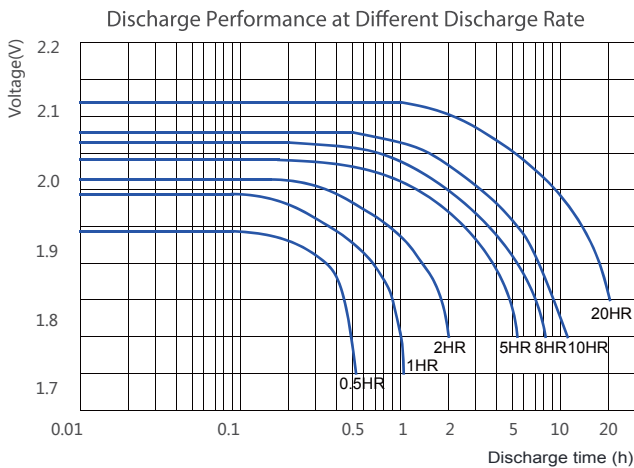
### Constant Current Discharge Characteristics Unit: A (25°C,77°F)

F.V/Time	1h	1.5h	2h	3h	4h	5h	6h	8h	10h
1.90V	1090	1075	864	646	544	446	383	329	268
1.85V	1294	1219	925	711	582	485	414	349	290
1.80V	1546	1257	982	755	604	513	452	359	302
1.75V	1655	1316	1026	776	616	522	460	366	306
1.70V	1749	1375	1060	791	626	529	466	369	309
1.65V	1824	1402	1083	797	632	532	469	370	310

### Constant Power Discharge Characteristics Unit: W/cell (25°C,77°F)

F.V/Time	1h	1.5h	2h	3h	4h	5h	6h	8h	10h
1.90V	2125	2119	1712	1296	1098	901	777	665	545
1.85V	2543	2376	1812	1412	1164	972	831	702	585
1.80V	2987	2429	1905	1485	1202	1023	905	720	605
1.75V	3137	2524	1981	1517	1222	1039	920	733	612
1.70V	3298	2612	2031	1541	1239	1051	928	737	617
1.65V	3388	2640	2062	1550	1246	1056	933	739	618

### Performance Curve:



Declaration : This information is generally descriptive only and is not intended to make or imply any representation, guarantee or warranty with respect to any cells and batteries. Cell and battery designs/specifications are subject to modification without notice. Contact HELIOS for the latest information.

