VOLTA
BATTERIES

6-GFM (12V) Top Access VRLA Deep Cycle AGM Batteries

6-GFM Top Access VRLA Deep Cycle AGM Batteries comprise of high-capacity with new model that is developed with the latest modern technology. This product has many advantages, such as, safe and reliable seal, high specific energy, low resistance, low rate of self-discharge, good charge acceptance, long cyclic life, and high seal reaction efficiency. There is no redundant electrolyte in normal use, and no acid smog spray. With easy usage and maintenance, it is intended for service in telecom, UPS, Power plants, transmission substation, security system, microwave relay station, remote sensing device, emergency light system, mobile measuring equipment, power supply system, military facilities, railway signaling, solar PV street lights, garden lights, lawn lights, traffic lights, warning lights and auto control equipment.

Power Management Instruments

6-GFM (12V) Top Access VRLA Deep Cycle AGM Batteries

The 6GFM VRLA battery uses gas recombination, AGM technology with lower internal resistance, high power density, long life cycle. 6GFM series is well suited for shallow cycling applications.

Application

6GFM18~6GFM28

- E-bike
- Golf cars
- Electric tricycle
- Ride on toy
- Quad bikes
- Battery powered wheelchairs
- Electric car
- Lifting equipment
- Mobility scooter
- Semi traction lawn motors

6GFM200

- UPS Applications (High Rate Discharge).
- Emergency Power Supply Systems.
- IT Net Work.
- Emergency Lighting Systems.
- Solar Photovoltaic Street Lights, Garden Lights.
- Solar Photovoltaic Water Pump for Water System.
- Wind Power System.

Product Features

- 12 Volt mono blocs.
- Maintenance Free: No topping up during whole service life.
- High energy density allows more compact lay out.
- Non spillable.
- VRLA AGM and gas recombination technology with 98% internal recombination.
- Excellent recovery against the deep discharge.
- One way safety valve.
- Flame retardant ABS container & cover.

Electrical Characteristics

6GFM18~6GFM28

Nominal voltage	: 12V.
Capacity range	: 18AH~ 28AH
Self discharge	: < 2~3%/month at 25°C.
Operating temperature	: Discharge : - 20°C ~ 50°C. Charge : - 10°C ~ 50°C. Storage : - 20°C ~ 40°C.
Recommended temperature	: 20~25°C.
Design life	: 5 year (in float operation in temperature controlled environment).
Maximum charging current limit	: 0.2x C10
Recommended charging current	: 0.15x C10
Standby use float voltage	: 13.6~13.8V.@25°C
Cycle use voltage	: 14.4~14.7V@25°C

6GFM200

Nomomnal voltage	: 12V.
Capacity range	: 200AH
Self discharge	: < 2~3%/month at 25°C.
Operating temperature	: Discharge : -40°C ~ 50°C. Charge : -20°C ~ 45°C. Storage : -20°C ~ 40°C.
Recommended temperature	: 20~25°C.
Design life	: 10 year (in float operation in temperature controlled environment).
Maximum charging current limit	: 0.2x C10 (Temperature Coefficient '-3mV/°C)
Recommended charging current	: 0.15x C10 (Temperature Coefficient '-3mV/°C)
Standby use float voltage	: 13.6 V.@25°C
Cycle use voltage	: 14.1V@25°C

Standard

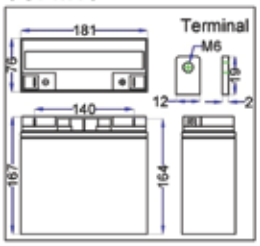
- ISO9001
- ISO14001
- IEC 60896-21 & 22

Main Specification & Type

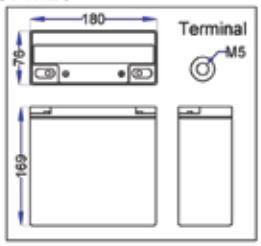
Type	Voltage (V)	Rated Capacity (AH)				Dimensions (mm)				Total Weight Appx(kg)	Terminal Type
		C20 FV=1.8V/C	C10 FV=1.8V/C	C5 FV=1.75V/C	C1 FV=1.65V/C	L±2	W±2	H±3	TH±3		
6GFM18	12	18	17.1	15.3	11.4	181	76	164	167	5.7	Bolt &Not
6GFM28	12	30	28	24	18	167	176	126	126	9.8	Female
6GFM45	12	45	42	38	28	197	165	171	171	14.0	Bolt &Not
6GFM200	12	210	200	174	126	525	260	220	232	68.0	Female

Cell Lay-Out (Terminal Position)

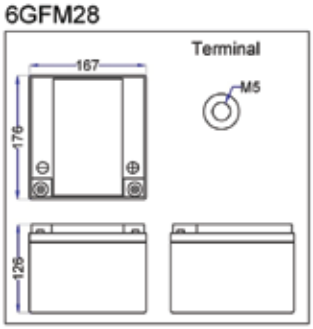
6GFM18



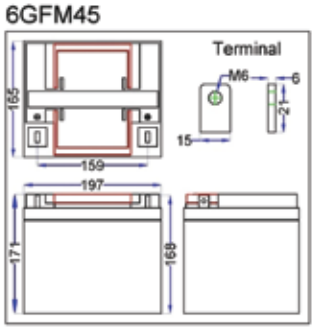
6GFM20



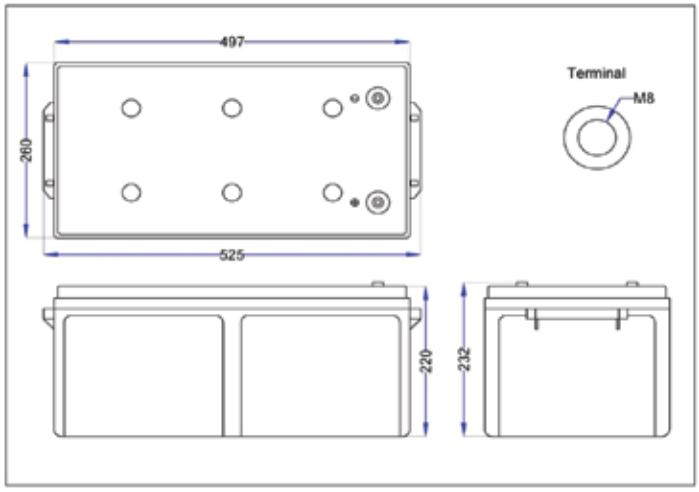
6GFM28



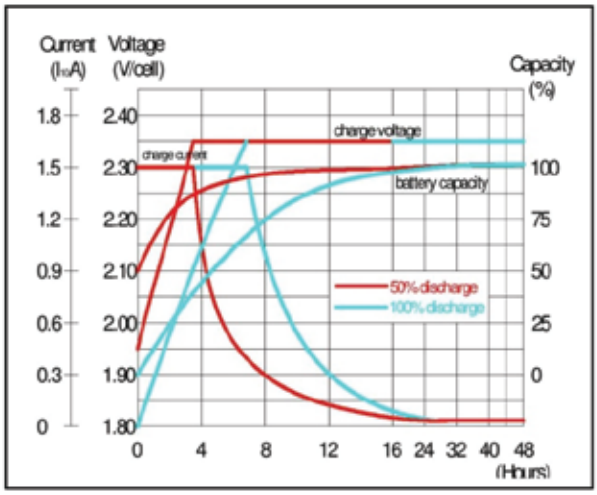
6GFM45



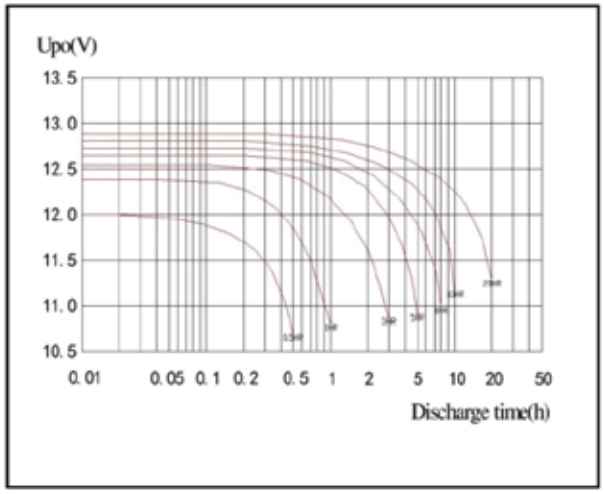
6GFM200



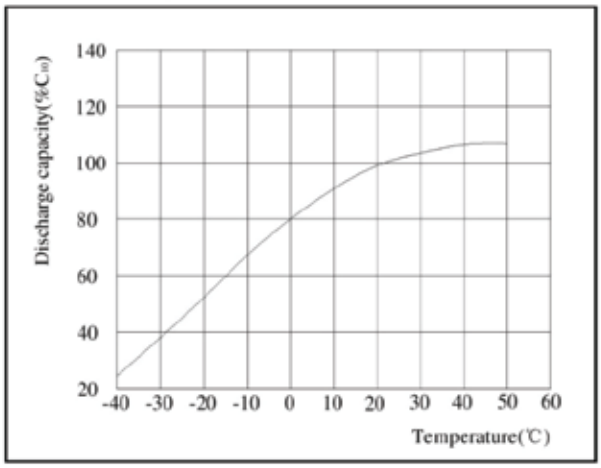
Constant Voltage Charge Characteristics



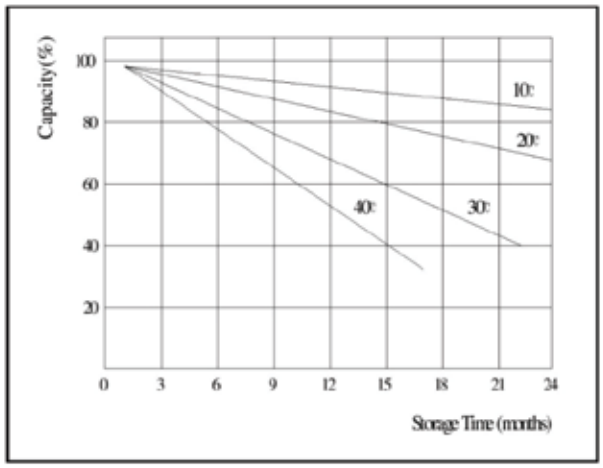
Discharge Performance at Different Discharge Rate



Capacity at Different Temperature



Curve of Storage Time and Self-discharge at Different Temperature



6GFM18

Discharge Rates in Ampere to Various End Voltage at 25℃

Final Voltage	Minutes				Hour						
	5	10	15	30	1	2	3	4	5	10	20
1.85	62.60	38.60	31.90	17.40	9.74	5.98	4.35	3.43	2.96	1.73	0.89
1.80	68.30	41.80	34.60	18.70	10.30	6.23	4.52	3.52	3.02	1.77	0.91
1.75	71.90	44.30	36.30	19.80	10.70	6.39	4.64	3.58	3.07	1.80	0.93
1.70	75.10	46.50	37.70	20.70	11.00	6.53	4.73	3.62	3.11	1.82	0.94
1.65	77.80	48.40	38.80	21.40	11.30	6.64	4.80	3.65	3.14	1.84	0.96
1.60	80.20	50.10	39.70	21.90	11.50	6.72	4.85	3.68	3.16	1.85	0.96

Discharge Rates in Watt to Various End Voltage at 25℃

Final Voltage	Minutes				Hour						
	5	10	15	30	1	2	3	4	5	10	20
1.85	98.90	67.00	57.20	32.70	18.80	11.90	8.75	6.63	5.82	3.40	1.77
1.80	116.00	77.10	64.50	35.10	19.80	12.40	9.10	6.93	6.05	3.52	1.83
1.75	128.00	84.50	69.40	37.70	20.70	12.70	9.33	7.12	6.17	3.60	1.88
1.70	135.00	89.10	72.50	39.40	21.30	13.10	9.53	7.27	6.27	3.67	1.92
1.65	139.00	91.70	74.20	40.30	21.80	13.30	9.68	7.38	6.35	3.72	1.95
1.60	141.00	92.90	75.10	40.80	22.20	13.50	9.78	7.46	6.41	3.75	1.96

6GFM20

Discharge Rates in Ampere to Various End Voltage at 25℃

Final Voltage	Minutes				Hour						
	10	20	30	45	1	1.5	2	3	5	10	20
1.75	61.00	38.00	28.00	21.00	17.17	12.50	10.00	7.33	4.60	2.40	1.25
1.70	61.70	38.80	28.50	21.30	17.33	12.62	10.07	7.34	4.61	2.41	1.25
1.65	62.50	39.10	28.60	21.38	17.40	12.65	10.10	7.36	4.62	2.42	1.27
1.60	63.20	39.70	28.80	21.47	17.47	12.68	10.30	7.37	4.63	2.43	1.29

Discharge Rates in Watt to Various End Voltage at 25℃

Final Voltage	Minutes				Hour						
	10	20	30	45	1	1.5	2	3	5	10	20
1.75	114.00	72.80	54.60	41.06	33.76	24.79	20.02	14.74	9.69	5.07	2.66
1.70	115.00	74.30	55.40	41.54	34.03	24.94	20.12	14.76	9.70	5.08	2.67
1.65	117.00	74.60	55.60	41.59	34.07	24.97	20.14	14.81	9.77	5.09	2.68
1.60	118.00	75.60	55.80	41.66	34.12	24.99	20.16	14.87	9.81	5.10	2.69

6GFM28

Discharge Rates in Ampere to Various End Voltage at 25℃

Final Voltage	Minutes				Hour						
	10	20	30	45	1	1.5	2	3	5	10	
1.75	98.10	60.38	44.40	31.20	24.45	17.40	14.00	10.00	6.40	2.79	
1.70	102.60	62.55	45.25	31.51	24.55	17.45	14.03	10.02	6.41	2.80	
1.65	104.10	63.28	45.89	31.82	26.65	17.52	14.08	10.05	6.42	2.80	
1.60	105.50	64.00	46.31	32.01	24.74	17.56	14.11	10.07	6.43	2.81	

Discharge Rates in Watt to Various End Voltage at 25℃

Final Voltage	Minutes				Hour						
	10	20	30	45	1	1.5	2	3	5	10	
1.75	187.60	116.00	86.86	61.67	48.79	34.95	28.20	20.21	12.99	5.66	
1.70	195.20	119.80	88.32	62.08	48.96	34.99	28.23	20.23	12.96	5.68	
1.65	197.10	120.80	89.33	62.59	49.12	35.07	28.31	20.26	12.98	5.68	
1.60	198.80	121.70	89.45	62.69	49.21	35.12	28.34	20.27	12.99	5.70	

6GFM45

Discharge Rates in Ampere to Various End Voltage at 25℃											
Final Voltage	Minutes				Hour						
	5	10	15	30	1	2	3	4	5	10	20
1.85	127.00	79.50	60.30	31.70	24.60	12.90	10.30	8.20	6.97	4.10	2.15
1.80	153.00	95.60	71.00	37.30	26.10	13.70	10.90	8.70	7.40	4.35	2.28
1.75	171.00	107.00	78.30	41.10	27.00	14.20	11.30	9.00	7.65	4.50	2.36
1.70	183.00	114.00	83.10	43.60	27.70	14.60	11.50	9.22	7.84	4.61	2.42
1.65	190.00	118.00	85.60	45.00	28.20	14.80	11.80	9.40	7.99	4.70	2.47
1.60	193.00	121.00	87.00	45.70	28.40	14.90	11.90	9.48	8.06	4.74	2.49
Discharge Rates in Watt to Various End Voltage at 25℃											
Final Voltage	Minutes				Hour						
	5	10	15	30	1	2	3	4	5	10	20
1.85	233.00	148.00	116.00	62.00	48.80	25.70	20.50	16.40	14.00	8.23	4.34
1.80	280.00	178.00	136.00	73.00	51.80	27.30	21.80	17.40	14.90	8.74	4.61
1.75	314.00	200.00	150.00	80.50	53.60	28.20	23.10	18.40	15.70	9.26	4.88
1.70	336.00	214.00	159.00	85.40	54.90	28.90	23.10	18.40	15.70	9.26	4.88
1.65	347.00	221.00	164.00	88.10	55.90	29.50	23.50	18.80	16.00	9.44	4.98
1.60	354.00	225.00	167.00	89.40	56.40	29.70	23.70	19.00	16.20	9.52	5.02

6GFM200

Discharge Rates in Ampere to Various End Voltage at 25℃											
Final Voltage	Minutes				Hour						
	5	10	15	30	1	2	3	4	5	8	10
1.90			382.8	149.4	94.8	67.4	48.0	38.4	32.6	23.0	19.2
1.85			231.8	168.8	100.4	71.2	49.0	39.2	33.4	23.4	19.6
1.80			269.4	183.0	108.0	72.8	50.0	40.0	34.0	24.4	20.0
1.75			290.6	193.4	110.2	73.6	50.6	40.4	34.4	24.8	20.2
1.70			306.4	204.6	114.0	74.6	51.0	40.8	34.6	25.0	20.4
1.65			320.4	212.0	117.4	76.4	51.6	41.2	35.0	25.2	20.6
Discharge Rates in Watt to Various End Voltage at 25℃											
1.65	Minutes				Hour						
	5	10	15	30	1	2	3	4	5	8	10
1.90			367.6	287.8	186.4	133.4	105.4	82.8	71.4	46.6	39.0
1.85			435.6	321.6	194.0	139.6	107.6	83.2	71.8	47.2	39.6
1.80			499.0	340.0	205.6	141.2	108.6	84.4	72.2	48.8	40.2
1.75			529.2	355.4	208.0	142.0	109.2	85.2	72.6	49.6	40.4
1.70			544.4	371.0	211.6	142.8	110.4	85.6	73.2	50.0	40.8
1.65			551.8	379.6	215.4	145.6	112.2	86.2	74.6	50.4	41.2

*All data and specifications are subject to change without any prior notice.

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