FirstPower®

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FirstPower®

energy is forever

The One-Stop Solutions for Rechargeable Products Applications

FirstPower
Rechargeable
Batteries

Products Manual

www.efirstpower.com
12/2012

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COMPANY PROFILE

FIRSTPOWER TECHNOLOGY CO., LTD
THE BEST MANUFACTURER OF
RECHARGEABLE BATTERY YOU SHALL TRUST

Huizhou Plant

Shaoguan Plant

Yixing Plant

FirstPower Technology Co., Ltd. was set up as a manufacturer of rechargeable batteries in 1993 and now has three plants (one in Yixing city, one in Xiaoguan city and the other in Huizhou city), with total manufacturing facilities of around 80,000 square meters. FirstPower generated, with a group of highly qualified staff in the rechargeable battery industry in China and overseas, from a good demand for quality batteries. It has enjoying a sound reputation for proven quality batteries for the last 15 years. Now we can produce 9 series batteries to meet different applications.

FirstPower brings you not only reliable battery and technology, but also excellent services and real value you shall expect and enjoy.

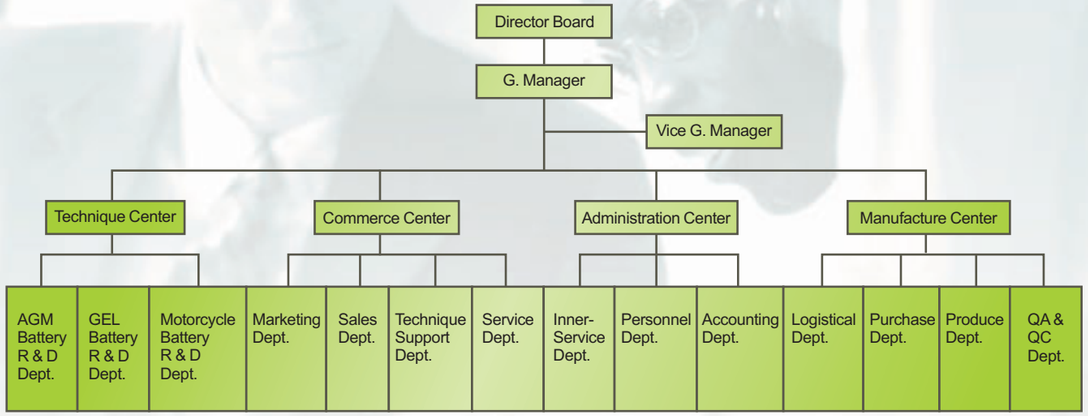
Compared with most other Chinese battery manufacturers, FirstPower can really supply customers with reliable batteries for various applications. Further we have a strong capability to work together excellently with our customers, so that our batteries are compatible with global standards of JISC8702 (1998), BS6290-4, DIN (IEEE1188), IEC60896-2, IEC60896-1,etc.
We welcome orders with "FirstPower" brand; We are also flexible to accept orders on OEM basis. Contact us now! Your partnership with FirstPower will prove worthy of it.

International certifications:
ISO9001 approval, file No. Q3105105131
UL approval, file No. MH28204
CE approval, file No. G2M20201-0102-E-16
KS approval, file No. KS C 8519
VDS approval
BS approval

MISSION STATEMENT

To be one of the best rechargeable battery suppliers in the world by means of innovating in technology and management continuously.

COMPANY CONSTRUCTION



OUR STRENGTH

Consistent quality performance that exceed customer expectations

Strong R & D competence to design special model

Excellent customer service

Proactive response including time to product, time to market, and time to volume

Continuous process improvement to drive cost competitiveness and quality performance

QUALITY POLICY

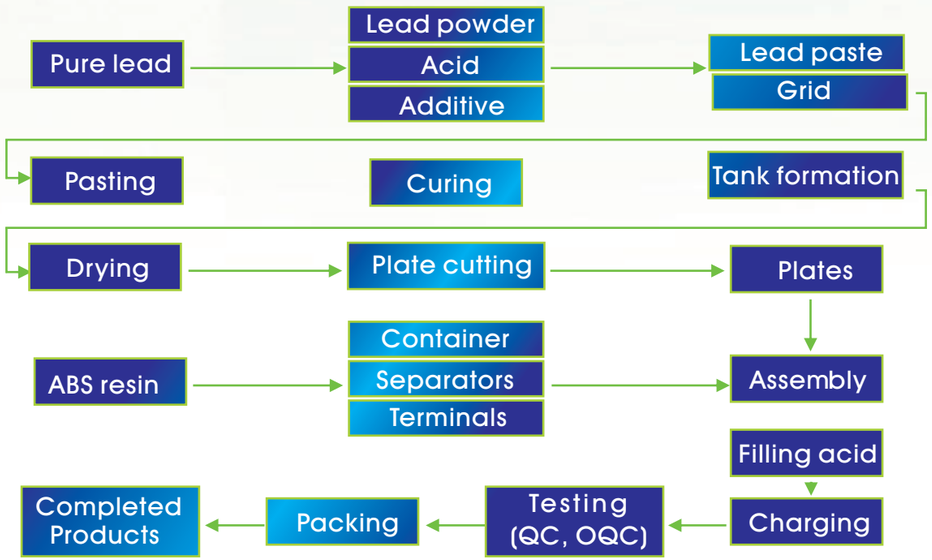
Technology As The Cornerstone
Quality Assurance
Customers First

QUALITY CONTROL

Firstpower applies the most advanced equipments and continual improved artworks to organize the production process. The QC department consists of IQC,IPQC, QA, QE, OQC, laboratory and testing subsidiaries' which strictly meets ISO9001 quality system requirements from in-house material to batteries out warehouse to make sure the products are under the strict audit in the whole process.

The defective rate is below 0.1%. Meanwhile, Firstpower take analytical pure material to make sure the batteries with high quality, long life, low self discharge advantages.

PRODUCTION PROCESS OF FIRSTPOWER BATTERIES



RESEARCHING & DEVELOPMENT

Firstpower cooperates with Harbin institute of technology and Fudan University which are leading universities about electrochemistry in China to set up the R&D center.

The engineers of R & D department have worked in electrochemistry area since 1990. The supervisors of QC and production departments are all with sufficient experience in VRLA battery industrial over 25 years. The best NPD cycle time is 6 weeks. Firstpower can present the qualified samples in 45 days.

HISTORY

HISTORY PROVED QUALITY QUALITY ENSURE FUTURE

1993
Established FirstPower Technology Co; Ltd. R&D center in Shenzhen China.

1995
Introduced into international advanced technology and equipment to produce battery in Shenzhen China.

1996
Acquired the testing certification of Battery quality supervision and inspection China.
Set up sales and service networks around China.

1997
Acquired ISO9001-1994 international quality system certification.

1998
Acquired UL and CE certification.

1999
Set up oversea sales branches in Asia Europe America.
Acquired the certification of Ministry of information industry China.

2000
Acquired the certification of Ministry of electric power industry China.
Established Chinese-Korean joint venture company (with VOLTA TECH. Co., LTD KOREAN).

2001
Acquired ISO9001-2000 international quality system certification.

2002
Set up a joint venture plant to produce battery plates in Fujian.

2003
Acquired KS certification
Set up a plant to produce motor cycle and electric bike battery in Jiangsu.

2004
The qualified supplier approved by LG (Korean).
The qualified supplier approved by SAMSUNG (Korean) .

2006
Set up ourselves plates plant in Shaoguan Guangdong province.
Acquired VDS certification.

2008
With more than 1500 employees, 80,000 m^2 plant, exporting to more than 40 countries including America, Germany, Japan, Italy, United Kingdom, Australia, Russia, Spain, Turkey, Brazil, Korean, India, Singapore, Malaysia, Thailand, Nigeria, Venezuela, Zimbabwe etc., and sales turnover is 90 million USD.

2010
New factory of huizhou(52,000m^2) was set up.

2011
Set up a joint venture factory in Malaysia.

VRLA(AGM) BATTERY

1 Features of FirstPower VRLA(AGM) Battery

1.1 Nonspillable

The FirstPower VRLA battery uses an absorbed electrolyte system. All of the electrolyte is absorbed into the positive plates, negative plates, and the separators. Coupled with the use of special sealing epoxies, and long sealing paths for posts, FirstPower VRLA batteries have exceptional leak resistance, and can be used in any position.

1.2 Sealed and Maintenance-free Operation

There is no corrosive gas generation during normal use and no need to check the specific gravity of the electrolyte or to add water during the service life.

1.3 High Quality and High Reliability

The FirstPower VRLA battery has stable and reliable capacity. The battery can withstand overcharge, over discharge, vibration, and shock. To assure this high quality and reliability, the batteries are 100% tested on production line for voltage, capacity, seals and the safety valve are 100% visually inspected before the final assembly process.

1.4 Exceptional Deep Discharge Recovery

FirstPower batteries have exceptional deep discharge recovery and charge acceptance, even after deep or prolonged discharge.

1.5 Low Self-discharge

Because of the use of lead calcium grids alloy and highly purity materials. FirstPower VRLA battery can be stored long periods of time without recharge. The rate of FirstPower VRLA battery self-discharge on open circuit is less than 2% per month at 20°C/68°F to 25°C/77°F.

1.6 Long Service Life

The FirstPower VRLA battery has long life in standby or cyclic service.

1.7 Solid Copper Terminals

Ensures highest current carrying capability.

1.8 Tank-formed Plates

The initial capacity will be 100% and optimize cell voltage balance, due to the tank formation of the plates.

1.9 Computer-aided Design and Manufacturing

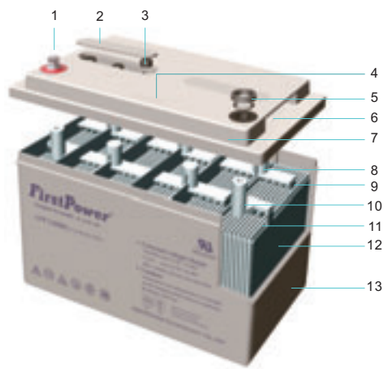
Ensures quality products through control of processes and standards.

1.10 UL and CE Recognized.

UL approval, file No. MH28204

CE approval, file No. G2M20201-0102-E-16

Battery Construction



1. Terminal
2. Top cover
3. Valve
4. Date Code
5. Pillar Seal
6. Handle
7. Cover
8. Post
9. Positive Plate
10. Pillar
11. Separator
12. Negative Plate
13. Container

2 Applications

- Telecommunication equipments
- Electronic instruments
- Alarm and security systems
- Emergency lighting
- Cable Television
- Computers
- Electronic cash registers
- Geophysical equipment
- Marine equipment
- Medical equipment
- Power tools
- Toys
- Portable cine and video lights
- Solar power systems
- Wind power systems
- Television and video recorders
- Vending machine
- Uninterruptible power supplies



3 General Characteristics

3.1 Discharging

3.1.1 Final Discharging Voltage

The final discharging voltage is the battery terminal voltage in close circuit voltage per cell to which a battery discharging safely and maximize battery life. The higher discharging current is, the lower final discharging voltage of battery should be .

Discharging Current	Final Discharging Voltage (vpc)
Up to 0.1CA	1.75
0.11-0.17CA	1.70
0.18-0.25CA	1.67
0.26-1CA	1.60
Above1.1CA	1.30

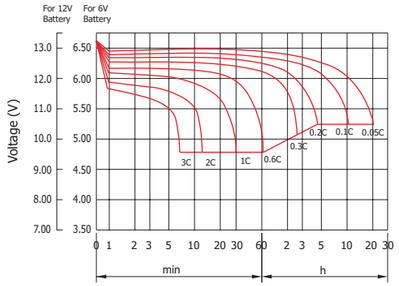


Figure 2:Discharge Characteristics Typically for LFP Type

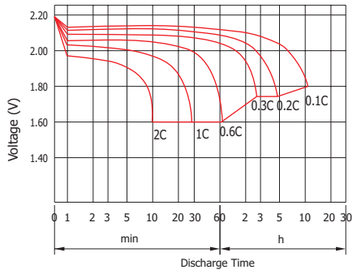


Figure 3: Discharge Characteristics Typically for CFP Type

3.1.2 Battery Discharging Characteristics:

The discharging capacity of battery depends on the discharge rate being used and ambient temperature.

Figure 1,2 and 3 show the different discharging current corresponding to discharging capacity at 20°C(68°F) to 25°C(77°F) for FP, LFP and CFP types batteries. They show that the rated capacity of a battery is reduced when it is discharged at a value of current that exceeds its 10-hours or 20-hours rate.

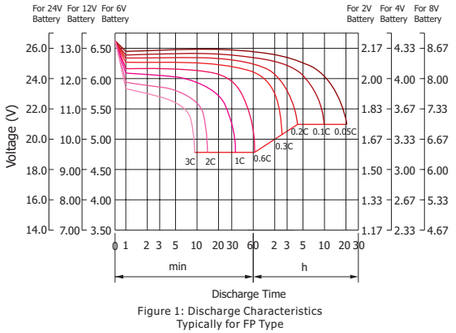


Figure 1: Discharge Characteristics Typically for FP Type

3.1.3 Temperature Effects in Relation to Battery Capacity.

At a higher temperature, the capacity of battery increases and conversely at a lower temperature, the capacity of battery decreases. Figure 4 shows the effects of different temperature in relation to battery capacity.

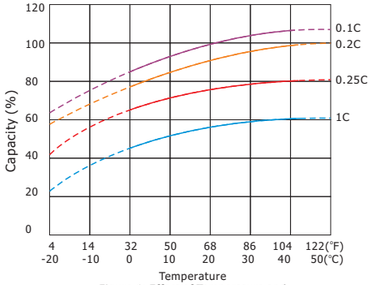


Figure 4: Effect of Temperature and Discharge Rate on Available Capacity

Can calculate the batteries' rated capacity as following formula if the ambient temperature of tested battery is not 20°C-25°C(68°F-77°F).

$$C = \frac{Ct}{1+k(t-25)}$$

Note:
- C: rated capacity
- Ct: the tested capacity on t
- t: the ambient temperature of the tested battery
- k: the coefficient of temperature. It will be increased if the discharge current increased.
  k=0.006 20 hours and 10 hours rated capacity testing,
  k=0.01 3 hours and 1 hours rated capacity testing.

3.2 Charging

3.2.1 Charging Methods

Correct charging is one of the most important factors to consider when using valve regulated lead acid batteries. Battery performance and service life will be directly affected by the charging methods.

There are four major methods of charging.

Constant voltage charging.
Constant current charging.
Two stages constant voltage charging.Taper current charging.

3.2.1.1 Constant Voltage Charging

This is the recommended method of charging for VRLA batteries. It is necessary to closely control the actual voltage to ensure that it is with the limits advised.

Standby service:

2.23-2.30 vpc at 20°C(68°F) to 25°C(77°F)

Cycle service:

2.40-2.50 vpc at 20°C(68°F) to 25°C(77°F)

It is suggested that the initial current be set within 0.4CAmps. Figure 5 and 6 indicate the time taken to fully recharge the battery. It is also seen that the charging current is decreased to approx 0.5-4mA/Ah under charging voltage 2.30 vpc, and 3-10mA/Ah under charging voltage 2.40vpc when the battery is fully charged at 20°C(68°F) to 25°C(77°F).

Note: it is necessary to ensure that the voltage is correctly set. The charging voltage set too high will increase the corrosion of the positive plates causing loss of capacity and ultimately shortening the life of the battery.

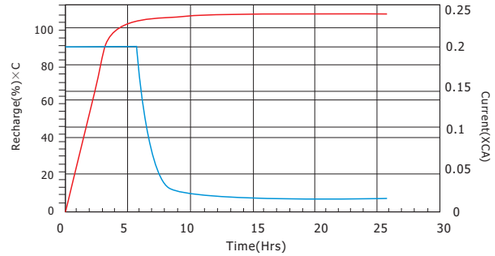


Figure 6: Charge 0.2C AMP Limit&2.40 V/C Following Full Discharge

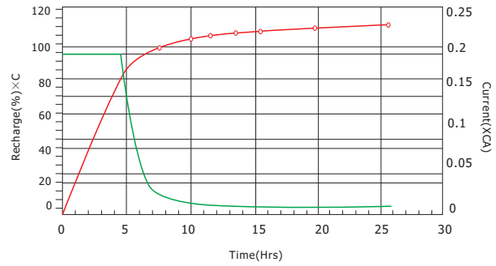


Figure 5: Charge 0.2C AMP Limit&2.30 V/C Following Full Discharge

3.2.1.2 Constant Current Charging

This method of charging is generally not recommended for VRLA batteries. It is necessary to understand that if the batteries are not removed from the charger as soon as possible after reaching a state of full charge. Considerable damage will occur to the batteries due to over charging. The required recharged capacity is 1.07 to 1.15 times as discharged capacity.

3.2.1.3 Two Stages Constant Voltage Charging

This method should not be used where the battery and load are corrected in parallel, however, if this method is to be used, it is suggested that the FirstPower technical department be contacted.

3.2.1.4 Taper Current Charging

This method is not recommended for VRLA

batteries, however, if this method is to be used it is suggested that the First Power technical department be contacted.

3.2.2 Effect of Temperature on Charging Voltage

As temperature rises, electrochemical activity in the battery increases. Similarly, as temperature falls, electrochemical activity decreases. Therefore, as temperature rises, charging voltage should be reduced to prevent overcharge, as temperature falls, charging voltage should be increased to avoid undercharge. In general, to assure optimum service life, use of a temperature compensated charger is recommended. The recommended compensation factor for FirstPower VRLA batteries is ±3mV/°C Cell (standby use) and± 4mV/oC cell(cyclic use). The standard central point for temperature compensation is 20°C/68°F. Figure7 shows the relationship between temperatures and charging voltages in both cyclic and standby applications.

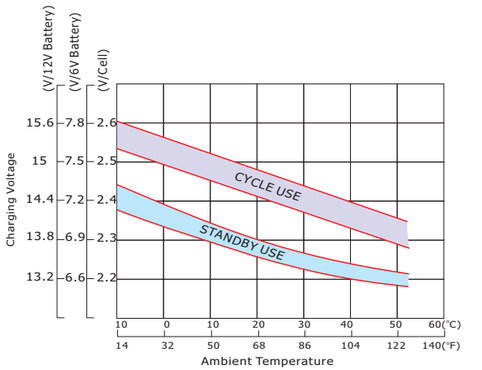


Figure 7: Relationship Between Charging Voltage and Temperature

3.2.3 Charging Time

The time required to complete each charge depends on the discharge condition of battery, characteristics of charge used, or the temperature during charge. For cyclic use, using constant voltage charging, this time can be estimated by the following expression at 25°C/77°F.

(1)Discharge current: Larger than 0.25CA
Tch = Cdis/I + 3 ~5

(2)Discharge current: Less than 0.25CA
Tch = Cdis/I + 6 ~10
Tch: time required for charge (hours)
Cdis: ampere-hour discharged before charge started(Ah)
I : initial charging current(A).

Complete charge time for float service will be slightly more than 24 hours.

Note: The minimum recharge capacity should be 1.02~1.05 times of discharge capacity

3.3. Battery Life

Battery life depends on a number of key factors. These include:

Operating temperature of the battery;

Method of charging utilized;

Actual use of the product i.e.: standby or cycle service etc.

3.3.1 Cyclic Life

Giving due consideration to the above factors, the actual life of a battery in cycle service is dependent on the depth of discharge of each cycle. The greater the depth of discharge of each cycle, the less the number of cycles available from the battery.

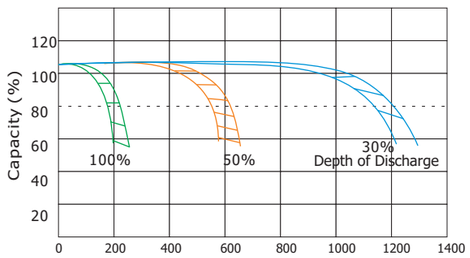


Figure 8: Cycle Life Vs Depth of Discharge
For Standard Series FP, LFP, Long Life, CFP Types

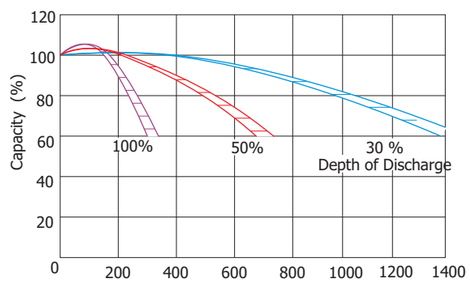


Figure 9: Cycle Life Vs Depth of Discharge
For Deep Cycle Series FP, LFP Types

3.3.2 Standby Life

The estimated life under float service of FP type is 7 years at 20°C/68°F; LFP type is 12 years at 20°C/68°F; CFP type is more than 20 years at 20°C/68°F. The float service life is affected by the factors listed above and the number of discharging, the depth of discharging the battery suffers during its life time. The more discharges suffered and the deeper the discharges, the shorter the battery life. The higher the temperature, the shorter the battery life. If the battery temperature remains at an elevated level for an extended period of time, the expected life is reduced by 50% for each 8 to 10°C of constant temperature above 20°C/68°F.

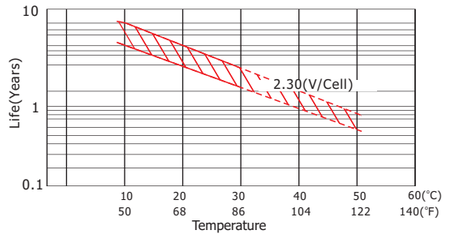


Figure 10: Effect of Temperature on
Long Term Float Life (FP Type)

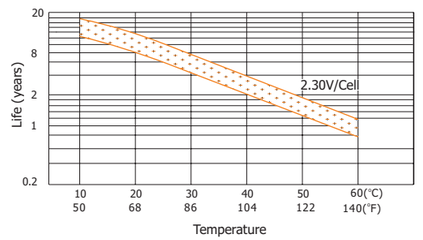


Figure 11: Effect of Temperature on
Long Term Float Life (LFP Type)

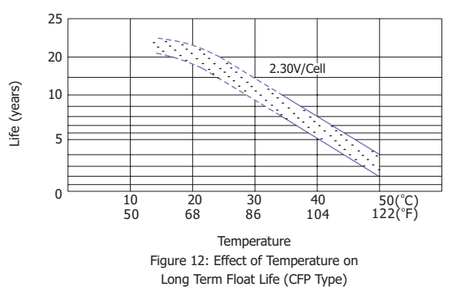


Figure 12: Effect of Temperature on
Long Term Float Life (CFP Type)

3.4. Battery Storage

3.4.1 General Storage Conditions:

The battery should be stored under the following conditions.

(1) Low humidity
(2) 5 to 122°F(-15 to 50°C)
(3) Clean, and avoid direct sunlight.

3.4.2 Capacity after Long Term Storage

After long term storage, all batteries deliver less than rated capacity on first cycle. In cyclic application, full capacity may be obtained through several charge/discharge cycles, typically 2-3 cycles.

3.4.3 Refresh Charge

When batteries are placed in extended storage, it is recommended that they receive a refresh charge at recommended intervals as following;

Storage Ambient:	Recommended Interval
Below 20 °C(68°F):	12 months
20 to 30°C(68 to 86°F):	6 moths
30 to 40°C(86 to 104°F):	3 moths

Refresh charging method:
3 to 5 hours of constant current 0.1C Amps or 12 to 16 hours at constant voltage of 2.45V/cell

3.4.4 "Self Life"- typical capacity vs. time

Self-discharge rate is very much dependent on the storage temperature as shown in Figure 13.Lower temperatures allow the battery to be stored for longer periods. (Each ten degree centigrade drop results in a halving of self-discharge rate and doubles storage time.)

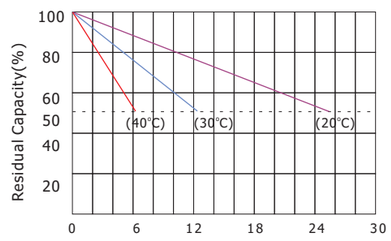


Figure 13: Self Life vs Storage Temperature

3.4.5 "Self Life"-storage time vs. temperature

Figure 14 shows the time for the capacity to decrease to 50% of nominal capacity at each temperature during storage. If the storage temperature is known, the graph may be used for finding the most useful recommended refresh charge intervals.

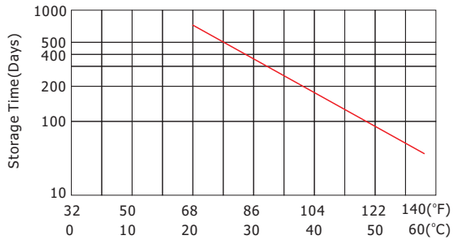


Figure 14: Self Life-Storage Time Temperature

3.4.6 Open Circuit Voltage and Residual Capacity

Residual capacity can be estimated by measuring the open circuit voltage as shown in Figure 15.

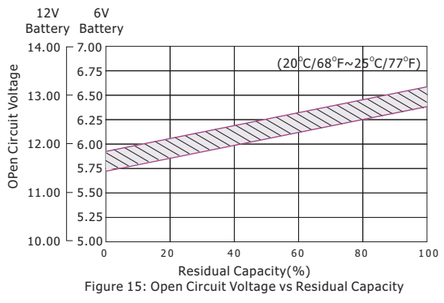


Figure 15: Open Circuit Voltage vs Residual Capacity

4 Battery Capacity Selection

The individual battery model specification sheet(www.efirstpower.com) can be used to determine the minimum battery size, exper in Ampere hours of capacity if know the discharging current(power) and the discharging time. The battery life(cycle service life or floating service life) should be considered for final battery capacity selection.

3.5 Battery Internal Resistance

The internal resistance of a battery is lowest when the battery is in a fully charged state. The battery internal resistance will be increased gradually during discharge.
Figure 16 shows the changing of internal resistance of FP1272(12V7.2Ah) battery during different rated discharging

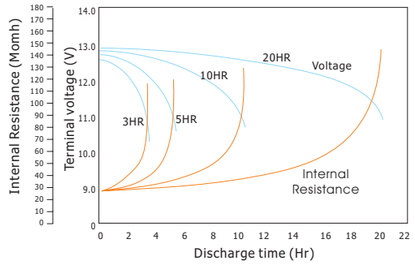


Figure 16: Internal resistance VS discharging

Standard Battery Series (FP Type) Specifications

Voltage: 2V, 4V, 6V, 8V, 12V, 18V, 24V, 36V **Capacity:** 0.3AH to 28AH
Designed floating service life : 10 Years at 20°C/68°F to 25°C/77°F

Model	Nominal Voltage (V)	Capacity (Ah)	Internal Resistance (mΩ)	Dimensions Length mm	Length in	Width mm	Width in	Height mm	Height in	Total Height mm	Total Height in	Terminal Type	Terminal Position	Weight Kg
FP203	2	0.3	80	17.5	0.69	6.5	0.26	68	2.68	68	2.68	Tab		0.02
FP205	2	0.5	60	17.5	0.69	8.5	0.33	68	2.68	68	2.68	Tab		0.03
FP245	2	4.5	6	46	1.81	25	0.98	100	3.94	106	4.17	T1	G	0.27
FP250	2	5	4											0.3
FP260	2	6	6	51	2.01	33	1.3	99	3.9	105	4.13	T1	G	0.34
FP270	2	7	5											0.38
FP2150	2	15	3.5	70	2.76	47	1.85	101	3.98	107	4.21	T1	A	0.8
FP405	4	0.4	130	39	1.54	14	0.55	50	1.97	50	1.97	Tab	G	0.07
FP408	4	0.8	110	35	1.38	22	0.87	64	2.52	71	2.8		E	0.1
FP420	4	2	27	45	1.77	33.5	1.32	75	2.95	81	3.19	T1	C	0.26
FP430	4	3	18	66	2.6	33.5	1.32	75	2.95	81	3.19	T1	C	0.38
FP432	4	3.2	14	90	3.54	34	1.34	60	2.36	66	2.6	T1	C	0.42
FP434	4	3.4	13											0.44
FP440	4	3.3	25	32	1.26	32	1.26	135	5.31	146	5.75	T1	C	0.35
FP445	4	4.5	17	48	1.89	48	1.89	102	4.02	108	4.25	T1	D	0.5
FP445A	4	4.5	15	48	1.89	52	2.05	94	3.7	99	3.9	T1	C	0.55
FP4100	4	10	8	102	4.02	44	1.73	95	3.74	101	3.98	T2/T1	C	1.05
FP4200	4	20	4.5	149	5.87	43	1.69	154	6.06	165	6.5	T3	D	2.22
FP605	6	0.4	150	57	2.24	14	0.55	51	2.01	51	2.01	plug	G	0.1
FP610	6	1	60	51	2.01	42	1.65	51	2.01	57	2.24	T1	A	0.25
FP612	6	1.2	52	97	3.82	24	0.94	52	2.05	58	2.28	T1	C	0.28
FP623	6	2	25	43	1.69	37	1.46	76	2.99	76	2.99	Tab	L	0.34
FP628	6	2.8	32	66	2.6	33	1.3	97	3.82	104	4.09	T1	A	0.49
FP628A	6	2.8	32	66	2.6	33	1.3	100	3.94	106	4.17	T1	A	0.49
FP632	6	3.2	28	134	5.28	35	1.38	61	2.4	67	2.64	T1	C	0.62
FP634	6	3.4	25											0.65
FP632A	6	3.2	28	67	2.64	34	1.34	118	4.65	124	4.88	T1	A	0.61
FP632B	6	3.2	28	125	4.92	33	1.3	61	2.4	67	2.64	T1	C	0.61
FP635	6	3.5	18	194	7.64	25	0.98	50	1.97	56	2.2	T1	C	0.6
FP640	6	4	30	70	2.76	47	1.85	101	3.98	107	4.21	T1	A	0.7
FP645	6	4.5	25											0.73
FP650	6	5	15											0.82
FP660	6	6	12											0.93
FP640A	6	4	30	70	2.76	47	1.85	101	3.98	106	4.17	Tab	A	0.7
FP645A	6	4.5	25											0.73
FP640B	6	4	30	70	2.76	47	1.85	102.5	4.04	103	4.06	T1	A	0.7
FP645B	6	4.5	25											0.73
FP640K	6	4	30	70	2.76	47	1.85	98	3.86	104	4.09	T1	A	0.7
FP645K	6	4.5	25											0.73
FP640WA	6	3.6	55	39	1.54	39	1.54	150	5.91	150	5.91	plug		0.62
FP640WB	6	4	50	194	7.64	25	0.98	62	2.44	62	2.44	plug	---	0.71
FP649	6	4.9	40	242	9.53	35	1.38	47	1.85	47	1.85	plug	N	0.85
FP650A	6	5	21	170	6.69	35	1.38	70	2.76	76	2.99	T1	C	0.9
FP660S	6	6	18	85	3.35	48	1.89	100	3.94	106	4.17	T1	A	1
FP665	6	6.5	17											1.05
FP670	6	7	16											1.15
FP672	6	7.2	16	151	5.94	34	1.34	94	3.7	100	3.94	T1/T2	C	1.17
FP685	6	8.5	9											1.28
FP690	6	9	8											1.35
FP680	6	8	10	98	3.86	56	2.2	117	4.61	119	4.69	T1	B	1.2
FP680A	6	8	10	98	3.86	56	2.2	110	4.33	114	4.49	T1	D	1.2
FP6100	6	10	14	151	5.94	50	1.97	94	3.7	100	3.94	T1/T2	C	1.6
FP6120	6	12	10											1.8
Fp6140	6	14	10	108	4.25	71	2.8	140	5.51	140	5.51	+T2/-T1		2.25
FP6140W	6	14	16	108	4.25	71	2.8	140	5.51	140	5.51	H/S plug		2.25
FP6200	6	20	8	157	6.18	83	3.27	125	4.92	130	5.12	T3	C	3.1
FP832	8	3.2	30	68	2.68	49	1.93	91	3.58	91	3.58	Tab	L	0.85
FP832A	8	3.2	28	134	5.28	36	1.42	63	2.48	69	2.72	T1	E	0.85

Standard Battery Series (FP Type) Specifications

Voltage: 2V, 4V, 6V, 8V, 12V, 18V, 24V, 36V **Capacity:** 0.3AH to 28AH
Designed floating service life : 7 Years at 20°C/68°F to 25°C/77°F

Model	Nominal Voltage (V)	Capacity (Ah)	Internal Resistance (mΩ)	Dimensions Length mm	Length in	Width mm	Width in	Height mm	Height in	Total Height mm	Total Height in	Terminal Type	Terminal Position	Weight Kg
P1208	12	0.8	200	96	3.78	25	0.98	62	2.44	62	2.44	plug	O	0.33
FP1212	12	1.2	90	97	3.82	43	1.69	52	2.05	58	2.28	T1	E	0.54
FP1214	12	1.4	70											0.55
FP1212A	12	1.2	110	97	3.82	48	1.89	51	2.01	57	2.24	T1	F	0.56
FP1220M	12	1.6	70	150	5.91	20	0.79	90	3.54	90	3.54	Tab	L	0.68
FP1220C	12	1.6	150	144	5.67	24	0.94	65	2.56	65	2.56	Tab		0.55
FP1220	12	2	65	178	7.01	35	1.38	61	2.4	67	2.64	T1	C	0.82
FP1223	12	2.3	60											0.9
FP1223C	12	2	130	182	7.17	24	0.94	62	2.44	62	2.44	Tab		0.71
FP1223CA	12	2	140	201	7.91	24	0.94	62	2.44	62	2.44	Tab		0.72
FP1220A	12	2	72	70	2.76	48	1.89	98	3.86	104	4.09	T1	C	0.75
FP1223A	12	2.3	60											0.8
FP1226A	12	2.6	55											0.85
FP1226	12	2.6	35	178	7.01	34	1.34	60	2.36	71	2.8	T1	F	0.94
Fp1225	12	2.5	42	104	4.09	48	1.89	70	2.76	70	2.76	+T2/-T1	M	0.9
FP1227	12	2.7	38											0.99
FP1228	12	2.8	50	67	2.64	67	2.64	97	3.82	103	4.06	T1	C	1
FP1228A	12	2.8	50	132	5.2	33	1.3	98	3.86	104	4.09	T1	C	1
FP1229	12	2.9	42	79	3.11	56	2.2	99	3.9	105	4.13	T1	D	1.05
FP1232	12	3.2	52	134	5.28	67	2.64	61	2.4	67	2.64	T1	E	1.25
FP1234	12	3.4	50											1.3
FP1242	12	4.2	45	195	7.68	47	1.85	70	2.76	76	2.99	T1	C	1.45
FP1245A	12	4.5	40											1.58
FP1240	12	4	55	90	3.54	70	2.76	101	3.98	107	4.21	T1	C	1.4
FP1245	12	4.5	45											1.47
FP1250	12	5	26											1.65
FP1260	12	6	22											1.8
FP1250A	12	5	26	140	5.51	48	1.89	102	4.02	103	4.06	+T2/-T1	C	1.65
FP1260A	12	6	22											1.8
FP1265	12	6.5	24	151	5.94	52	2.05	94	3.7	99	3.9	T2/T1	F	1.92
FP1265S	12	6.5	24	151	5.94	51	2.01	95	3.74	100	3.94	+T2/-T1	F	1.9
FP1265A	12	6	30	151	5.94	65	2.56	94	3.7	100	3.94	T1/T2	F	2.08
FP1270	12	7	28											2.22
FP1272	12	7.2	28											2.26
FP1275	12	7.5	22											2.3
FP1285	12	8.5	20											2.45
FP1290	12	9	19											2.65
FP12100A	12	10	19	151	5.94	65	2.56	111	4.37	117	4.61	T2/T1	F	2.8
FP12100	12	10	32	151	5.94	98	3.86	95	3.74	101	3.98	T2	F	3.2
FP12120	12	12	19											3.6
FP12150A	12	15	20	160	6.3	76	2.99	159	6.26	162	6.38	T3	C	4.5
FP12150	12	15	18	181	7.13	77	3.03	167	6.57	167/167	6.57/6.57	T3/T8	D	5
FP12170	12	17	17											5.1
FP12180	12	18	16											5.3
FP12200	12	20	12											5.7
FP12220	12	22	10	181	7.13	77	3.03	166	6.54	166	6.54	T8	D	6.3
FP12240	12	24	14	166	6.54	175	6.89	125	4.92	125/125	4.92/4.92	T3/T8	D	7.8
FP12240A	12	24	14	165	6.5	125	4.92	175	6.89	182/175	7.17/6.89	T6/T8	D	7.8
FP12260	12	26	12	165	6.5	176	6.93	127	5	127	5	T3	D	7.9
FP12280	12	28	10	166	6.54	175	6.89	125	4.92	125/125	4.92/4.92	T3/T8	D	8.6
FP12280A	12	28	11	165	6.5	125	4.92	175	6.89	182/175	7.17/6.89	T6/T8	D	8.6
FP1870	18	7	60	151	5.94	102	4.02	100	3.94	100	3.94	plug	P	3.4
FP1890	18	9	40											4
FP2445	24	4.5	65	206	8.11	77	3.03	74	2.91	74	2.91	plug	P	3.1
FP2450	24	5	60	140	5.51	90	3.54	103	4.06	109	4.29	T1	D	3.2
FP24100	24	10	50	301	11.85	65	2.56	102	4.02	102	4.02	plug	P	5.6
FP24140	24	14	45	300	11.81	98	3.86	103	4.06	103	4.06	plug	P	8
FP24200	24	20	35	170	6.69	146	5.75	185	7.28	185	7.28	plug	E	11.5
Fp36120	36	12	60	190	7.48	150	5.91	115	4.53	115	4.53	plug	P	9.8

*Total height stands for overall height including terminals. Some models have two data for different terminal. eg. Model LFP6200, the total height show as 246/229 and the terminal show as T5/T11, that means the total height 246 for T5 terminal and 229 for T11 terminal.

Standard Battery Series (LFP Type) Specifications

Voltage: 6V, 8V, 12V **Capacity:** 33AH to 280AH
Designed floating service life : 12 Years at 20°C/68°F to 25°C/77°F

Model	Nominal Voltage (V)	Capacity (Ah)	Internal Resistance (mΩ)	Dimensions Length mm	Length in	Width mm	Width in	Height mm	Height in	Total Height mm	Total Height in	Terminal Type	Terminal Position	Weight Kg
LFP636	6	36	4.5											5.5
LFP642	6	42	4.2	162	6.4	88	3.5	164	6.5	170	6.7	T2	B	6.2
LFP645	6	45	4											6.4
LFP6100	6	100	3	194	7.6	170	6.7	205	8.1	210	8.3	T9	A	15.5
LFP6100A	6	100	3	281	11.1	128	5	189	7.4	204	8	T11	B	15.5
LFP6150	6	150	2.5	260	10.24	180	7.09	245	9.65	250	9.84	T11	B	23.5
LFP6180B	6	180	2.3											28
LFP6200B	6	200	2											30
LFP6200	6	200	2	321	12.64	176	6.93	226	8.9	246	9.69	T5/T11	A	30.5
LFP6225	6	225	1.8											32
LFP6180	6	180	2.2	307	12.1	169	6.7	220	8.7	225	8.9	T11	B	27.5
LFP6200A	6	200	2	307	12.1	169	6.7	220	8.7	225	8.9	T11	B	29
LFP6190	6	190	2.2	243	9.6	187	7.4	253	10	276	10.9	T11	B	28.5
LFP6220	6	220	2											32
LFP6300	6	300	1.5	295	11.61	178	7.01	345	13.58	348	13.7	T11	B	47
LFP8180	8	180	3	260	10.24	182	7.17	295	11.61	298	11.73	T11	C	36.5
LFP1233	12	33	10	195	7.7	130	5.1	155	6.1	180/166	7.1/6.7	T7/T9	C	10
LFP1235	12	35	9											10.5
LFP1234	12	34	11	310	12.2	77	3	166	6.5	172/180	6.8/7.1	T2/T3	D	9.5
LFP1238	12	38	9	197	7.8	165	6.5	170	6.7	170/170	6.7/6.7	T4/T9	D	12.3
LFP1240	12	40	8.5											12.8
LFP1245	12	45	8											14
LFP1240A	12	40	8.5	197	7.8	165	6.5	175	6.9	182/175	7.2/6.9	T6/T9	D	12.8
LFP1245A	12	45	8											14
LFP1240B	12	40	8.5	197	7.8	166	6.5	170	6.7	170	6.7		D	12.8
LFP1250	12	50	7.5	229	9	138	5.4	208	8.2	230/211	9.1/8.3	T5/T9	C	16.3
LFP1255	12	55	6.5											17.3
LFP1260B	12	60	6	250	9.8	160	6.3	178	7	200	7.9	T5	C	19
LFP1260C	12	60	6	220	8.66	121	4.76	247	9.72	250	9.84	T9	D	19.5
LFP1260	12	60	7	260	10.2	168	6.6	211	8.3	233/214	9.2/8.4	T5/T9	C	19
LFP1270	12	70	6.5											22
LFP1275	12	75	6											22.5
LFP1280A	12	80	5.5											23.5
LFP1285	12	85	5											24.7
LFP1265	12	65	6	350	13.78	167	6.57	179	7.05	186	7.32	T5/T9	C	20.8
LFP1270S	12	70	5.5											21.5
LFP1275S	12	75	5.4											22.2
LFP1278	12	78	5											23
LFP1280	12	80	4											23.5
LFP1265A	12	65	6.5	350	13.8	166	6.5	174	6.9	174	6.9	T17/T9	D	21
LFP1265B	12	65	6	330	13	173	6.8	167	6.6	170	6.7	T9	D	20.8
LFP1290A	12	90	5	330	13	171	6.7	214	8.4	224/220	8.8/8.7	T5/T9	C	27
LFP12100	12	100	4.5											30.5
LFP12120A	12	110	4											32.5
LFP1290	12	90	5.5	306	12.05	169	6.65	211	8.31	233	9.17	T5/T9	C	27
LFP1295	12	95	5											27.5
LFP12100V	12	100	4											30
LFP12100A	12	100	4.5	406	15.98	173	6.81	208	8.19	238	9.37	T19/T5/T11	C	31
LFP12120C	12	120	4											35
LFP12100C	12	100	4.5	330	12.99	220	8.66	160	6.3	165	6.5	T9	C	30
LFP12100S	12	100	4.5	409	16.1	176	6.93	225	8.86	225	8.86	T5/T11	C	31
LFP12120	12	120	4											35
LFP12120B	12	120	4	443	17.4	167	6.58	204	8.03	224	8.82	T5	D	35
LFP12110	12	110	4	281	11.1	267	10.5	207	8.1	210	8.3	T11	B	33
LFP12134	12	134	3.8	342	13.46	172	6.77	280	11.02	285	11.22	T11	C	42
LFP12150C	12	150	3.2											46

Standard Battery Series (LFP Type) Specifications

Voltage: 6V, 8V &12V **Capacity:** 33AH to 280AH
Designed floating service life : 12 Years at 20°C/68°F to 25°C/77°F

Model	Nominal Voltage (V)	Capacity (Ah)	Internal Resistance (mΩ)	Dimensions Length mm	Length in	Width mm	Width in	Height mm	Height in	Total Height mm	Total Height in	Terminal Type	Terminal Position	Weight Kg
LFP12145	12	145	5											44.5
LFP12150A	12	150	4.5	428.5	16.9	177	7	258	10.2	258	10.2	M6 bolt		47
LFP12160A	12	160	4.2											49.5
LFP12150	12	150	3.5	485	19.1	172	6.8	240	9.4	242/240	9.5/9.5	T5/T11	C	44
LFP12150B	12	150	3.6	494	19.45	163	6.44	227	8.89	227	8.89	T11/T13	E	45
LFP12150S	12	150	3.8											49
LFP12180	12	180	3.3	494	19.45	206	8.11	209	8.23	235	9.25	T20/T11	E	54
LFP12200A	12	200	2.8											57
LFP12200	12	200	3	522	20.6	238	9.4	218	8.6	238/221	9.4/8.7	T5/T11	E	62.5
LFP12225	12	225	2.8											65
LFP12200S	12	200	3.3	499	19.6	260	10.2	218	8.6	241	9.5	T12	E	61
LFP12220S	12	220	3											64.5
LFP12230	12	230	2.8	521	20.51	269	10.59	203	7.99	223/206	8.8/8.1	T5/T11	E	66.5
LFP12250	12	250	2.6	521	20.5	269	10.6	220	8.7	242/223	9.5/8.8	T5/T11	E	74

Standard Battery Series (CFP Type) Specifications

Voltage: 2V **Capacity:** 50AH to 3000AH
Designed floating service life : 20 Years at 20°C/68°F to 25°C/77°F

Model	Nominal Voltage (V)	Capacity (Ah)	Internal Resistance (mΩ)	Dimensions Length mm	Length in	Width mm	Width in	Height mm	Height in	Total Height mm	Total Height in	Terminal Type	Terminal Position	Weight Kg
CFP250	2	50	1.1	161	6.3	50	2	166	6.5	175	6.9	T4	B	3
CFP2100	2	100	0.8	171	6.7	72	2.8	206	8.1	209	8.2	T10	A	5.8
CFP2150	2	150	0.6	171	6.7	102	4	206	8.1	221	8.7	T10	A	8.3
CFP2200	2	200	0.9	173	6.8	109	4.3	330	13	364	14.3	T10	G	13
CFP2250	2	250	0.75											15
CFP2300	2	300	0.75	171	6.7	151	5.9	330	13	364	14.3	T10	G	18.5
CFP2350	2	350	0.65											20.5
CFP2400	2	400	0.6	210	8.3	176	6.9	330	13	367	14.4	T10	H	25.5
CFP2450	2	450	0.5											27.5
CFP2500	2	500	0.5	241	9.5	171	6.7	330	13	365	14.4	T10	H	30.5
CFP2550	2	550	0.45											32.5
CFP2600	2	600	0.45	302	11.9	175	6.9	330	13	367	14.4	T10	H	36.5
CFP2800	2	800	0.35	410	16.1	175	6.9	330	13	367	14.4	T10	I	50.5
CFP21000	2	1000	0.28	475	18.7	175	6.9	330	13	367	14.4	T10	I	61
CFP21200	2	1200	0.25											68
CFP21500	2	1500	0.2	400	15.7	350	13.8	345	13.6	382	15	T10	J	94
CFP22000	2	2000	0.18	490	19.3	350	13.8	345	13.6	382	15	T10	K	124
CFP22400	2	2400	0.15											138
CFP23000	2	3000	0.11	710	28	350	13.8	345	13.6	382	15	T10	K	190
CFP2200S	2	200	0.8	206	8.1	103	4.1	355	14	390	15.4	T10	G	15
CFP2250S	2	250	0.75	206	8.1	124	4.9	355	14	390	15.4	T10	G	18.5
CFP2300S	2	300	0.7	206	8.1	145	5.7	355	14	390	15.4	T10	G	20.5
CFP2350S	2	350	0.65	206	8.1	124	4.9	471	18.5	506	19.9	T10	G	23.5
CFP2400S	2	400	0.55	206	8.1	145	5.7	471	18.5	506	19.9	T10	G	27
CFP2500S	2	500	0.45	206	8.1	166	6.5	471	18.5	506	19.9	T10	G	31.5
CFP2600S	2	600	0.4	206	8.1	145	5.7	646	25.4	681	26.8	T10	G	42.5
CFP2800S	2	800	0.35	210	8.3	191	7.5	646	25.4	681	26.8	T10	H	59
CFP21000S	2	1000	0.3	233	9.2	210	8.3	646	25.4	681	26.8	T10	H	70
CFP21200S	2	1200	0.25	275	10.8	210	8.3	646	25.4	681	26.8	T10	H	86
CFP21500S	2	1500	0.2	275	10.8	210	8.3	796	31.3	831	32.7	T10	H	103
CFP22000S	2	2000	0.18	399	15.7	210	8.3	772	30.4	807	31.8	T10	Q	148
CFP22500S	2	2500	0.15	487	19.2	212	8.3	772	30.4	807	31.8	T10	I	185
CFP23000S	2	3000	0.12	576	22.7	212	8.3	772	30.4	807	31.8	T10	I	220

Deep Cycle Battery Series Specifications

Voltage: 6V, 8V,12V,18V, 24V, 36V **Capacity:** FirstPower can produce high temperature battery which capacity from 4.5Ah to 3000Ah. Battery cycle life is more than 350 cycles at 80% DOD at 20°C/68°F

Model	Nominal Voltage (V)	Capacity (Ah)	Internal Resistance (mΩ)	Dimensions Length mm	Length in	Width mm	Width in	Height mm	Height in	Total Height mm	Total Height in	Terminal Type	Terminal Position	Weight Kg
FP1250D	12	5	26	90	3.5	70	2.8	101	4	107	4.2	T1	C	1.65
FP1270D	12	8	28	151	5.9	65	2.6	94	3.7	100	3.9	T1	F	2.22
FP1290D	12	9	19											2.65
FP12120D	12	12	19	151	5.9	98	3.9	95	3.7	101	4	T2	F	3.6
FP12180D	12	18	16	181	7.1	77	3	167	6.6	167/167	6.6/6.6	T3/T8	D	5.3
FP12200D	12	20	12											5.8
FP12240D	12	24	14	166	6.5	175	6.9	125	4.9	125/125	4.9/4.9	T3/T8	D	7.8
FP12280D	12	28	10											8.8
FP1870D	18	7	60	151	5.9	102	4	100	3.9	100	3.9	plug	P	3.4
FP1890D	18	9	40											4
FP2445D	24	4.5	65	206	8.1	77	3	74	2.9	74	2.9	plug	P	3.1
FP2450D	24	5	60	140	5.51	90	3.54	103	4.06	109	4.29	T1	D	3.2
FP24100D	24	10	50	301	11.9	65	2.6	102	4	102	4	plug	P	5.6
FP24140D	24	14	45	300	11.8	98	3.9	103	4.1	103	4.1	plug	P	8
FP24200D	24	20	35	170	6.69	146	5.75	185	7.28	185	7.28	plug	E	11.5
FP36120D	36	12	65	190	7.5	150	5.9	115	4.5	115	4.5	plug	P	9.8
LFP6100D	6	100	3	194	7.6	170	6.7	205	8.1	210	8.3	T9	A	15.5
LFP6150D	6	150	2.5	260	10.2	180	7.1	245	9.6	250	9.8	T11	B	23.5
LFP6200D	6	200	3.1	321	12.6	176	6.9	226	8.9	246/229	9.7/9.0	T5/T11	A	30.5
LFP6190D	6	190	2.2	243	9.57	187	7.36	253	9.96	276	10.87	T11	B	28.5
LFP6220D	6	220	2											33
LFP8180D	8	180	3	260	10.24	182	7.17	295	11.61	298	11.73	T11	C	36.5
LFP1233D	12	33	10	195	7.7	130	5.1	155	6.1	180/166	7.1/6.5	T7/T9	C	10
LFP1240D	12	40	8.5	197	7.8	165	6.5	170	6.7	170/170	6.7/6.7	T4/T9	D	12.8
LFP1255D	12	55	6.5	229	9	138	5.4	208	8.2	230/211	9.1/8.3	T5/T9	C	17.3
LFP1260D	12	60	7	260	10.2	168	6.6	211	8.3	233/214	9.2/8.4	T5/T9	C	19
LFP1270D	12	70	6.5											22
LFP1280D	12	80	5.5											23.5
LFP1265D	12	65	6	350	13.8	167	6.6	179	7	186/179	7.3/7.0	T5/T9	C	20.8
LFP1290D	12	90	5.5	306	12	169	6.7	211	8.3	233/214	9.2/8.4	T5/T9	C	27
LFP12100D	12	100	4.5	330	13	171	6.7	214	8.4	224/220	8.8/8.7	T5/T9	C	30
LFP12120D	12	120	4	409	16.1	176	6.9	225	8.9	225/225	8.9/8.9	T5/T11	C	35
LFP12150D	12	150	3.5	485	19.1	172	6.8	240	9.4	242/240	9.5/9.4	T5/T11	C	44
LFP12180D	12	180	3.3	494	19.4	206	8.1	209	8.2	235/235	9.3/9.3	T20/T11	E	54
LFP12200D	12	200	3	522	20.6	238	9.4	218	8.6	238/221	9.4/8.7	T5/T11	E	61
LFP12250D	12	250	2.6	521	20.5	269	10.6	220	8.7	242/223	9.7/8.8	T5/T11	E	74

Long Life Battery Series Specifications

Voltage: 6V &12V **Capacity:** 40AH to 250AH
Battery floating service life can target 15 years at 20°C/68°F to 25°C/77°F

Model	Nominal Voltage (V)	Capacity (Ah)	Internal Resistance (mΩ)	Dimensions Length mm	Length in	Width mm	Width in	Height mm	Height in	Total Height mm	Total Height in	Terminal Type	Terminal Position	Weight Kg
FP1270L	12	7	28	151	5.94	65	2.56	94	3.7	100	3.94	T1/T2	F	2.35
FP12120L	12	12	19	151	5.94	98	3.86	95	3.74	101	3.98	T2	F	3.8
FP12180L	12	18	16	181	7.18	77	3.02	167	6.57	167	6.57	T3/T8	D	5.45
FP12240L	12	24	14	166	6.53	175	6.89	125	4.92	125	4.92	T3/T8	D	7.9
FP12280L	12	28	10											8.7
LFP6200L	6	200	3.1	321	12.6	176	6.9	226	8.9	246/229	9.7/9.0	T5/T11	A	32
LFP1240L	12	40	8.5	197	7.8	165	6.5	170	6.7	170/170	6.7/6.7	T4/T9	D	13.5
LFP1250L	12	50	7.5	229	9.02	138	5.4	208	8.2	230/211	9.1/8.3	T5/T9	C	19.8
LFP1255L	12	55	6.5											17.8
LFP1250AL	12	50	7.5	258	10.2	133	5.2	200	7.9	200	7.9	T9	C	16.5
LFP1265L	12	65	6	350	13.8	167	6.6	179	7	186/179	7.3/7.1	T5/T9	C	22.5
LFP1260L	12	60	7	260	10.2	168	6.6	211	8.3	233/214	9.2/8.4	T5/T9	C	21
LFP1270L	12	70	6.5											23.7
LFP1280L	12	80	5.4											25.5
LFP1290L	12	90	5.5	306	12	169	6.7	211	8.3	233/214	9.2/8.4	T5/T9	C	28.5
LFP12100L	12	100	4.5	330	13	171	6.7	214	8.4	224/220	8.8/8.7	T5/T9	C	32
LFP12120L	12	120	4	409	16.1	176	6.9	225	8.9	225/225	8.9/8.9	T5/T11	C	37
LFP12150L	12	150	3.5	485	19.1	172	6.8	240	9.4	242/240	9.5/9.5	T5/T11	C	46
LFP12200L	12	200	3	522	20.6	238	9.4	218	8.6	238/221	9.4/8.7	T5/T11	E	65
LFP12250L	12	250	2.6	521	20.5	269	10.6	220	8.7	242/223	9.5/8.8	T5/T11	E	78
LFP1250FT	12	50	7.5	277	10.91	106	4.17	221	8.7	221	8.7	T9	E	17
LFP1255FT	12	55	6.5											17.5
LFP1275FT	12	75	6	562	22.1	114	4.5	189	7.4	189	7.4	M8 bolt	E	25
LFP12100FT	12	100	5	506	19.9	110	4.3	224	8.8	239	9.4	T9	E	31
LFP12105FT	12	105	5.5	395	15.6	110	4.3	286	11.3	286	11.3	T9	E	32
LFP12110FT	12	110	5											32.5
LFP12110AFT	12	110	4.5	560	22	125	4.9	228	9	228	9	T9	E	33
LFP12120FT	12	120	4.3	551	21.7	110	4.3	239	9.4	239	9.4	T11	E	36
LFP12125FT	12	125	4.2	436	17.2	108	4.3	317	12.5	317	12.5	T14	E	38
LFP12150FT	12	150	4	551	21.7	110	4.3	287	11.3	287	11.3	T11	E	48.5
LFP12170FT	12	170	4	546	21.5	125	4.9	317	12.5	323	12.7	T11	E	54
LFP12180FT	12	180	3.8											59
LFP12155KFT	12	155	4	560	22.05	126	4.96	280	11.02	280	11.02	T11	E	49
LFP12180KFT	12	180	3.6											53

High Rate Discharge Battery Series Specifications

Voltage: 6V & 12V **Capacity:** 12AH to 250AH
Designed floating service life : FP type: 5 Years / LFP type: 10 Years at 20°C/68°F

Model	Nominal Voltage (V)	15 min. Rate Capacity(Ah) (watts/cell)	Capacity (Ah)	Internal Resistance (mΩ)	Length		Dimensions Width		Height		Total Height		Terminal		Weight Kg
					mm	in	mm	in	mm	in	mm	in	Type	Position	
FP645HR	6	19	4.5	15	70	2.8	47	1.9	101	4	107	4.2	T1/T2	A	0.8
FP650HR	6	22	5	12											0.9
FP670HR	6	31	7	9	151	5.9	34	1.3	94	3.7	100	3.9	T1/T2	C	1.28
FP690HR	6	34	9	8											1.35
FP6120HR	6	51	12	6	151	5.9	50	2	94	3.7	100	3.9	T1/T2	C	2
FP1245HR	12	19	4.5	26	90	3.5	70	2.8	101	4	107	4.2	T1/T2	C	1.6
FP1250HR	12	22	5	22											1.8
FP1260HR	12	24	6	18	151	5.9	52	2	94	3.7	99	3.9	T2/T1	F	2.1
FP1270HR	12	31	7	20	151	5.9	65	2.6	94	3.7	100	3.9	T1/T2	F	2.45
FP1290HR	12	34	9	18											2.65
Fp12120HR	12	51	12	11	151	5.9	98	3.9	95	3.7	101	4	T2	F	4
FP12180HR	12	76	18	12	181	7.1	77	3	167	6.6	167/167	6.6/6.6	T3/T8	D	5.7
FP12200HR	12	82	20	10	181	7.1	77	3	166	6.5	166	6.5	T8	D	6.3
FP12240HR	12	100	24	10	166	6.5	175	6.9	125	4.9	125/125	4.9/4.9	T3/T8	D	8.2
FP12280HR	12	110	28	9	165	6.5	125	4.9	175	6.9	182/175	7.2/6.9	T6/T8	D	9.3
LFP1233HR	12	125	33	9	195	7.7	130	5.1	155	6.1	180/166	7.1/6.6	T7/T9	C	10.5
LFP1245HR	12	160	45	7.5	197	7.8	165	6.5	170	6.7	170/170	6.7/6.7	T4/T9	D	14.2
LFP1265HR	12	240	65	5.5	350	13.8	167	6.6	179	7	186/179	7.3/7.1	T5/T9	C	21.5
LFP1270HR	12	250	70	6											22
LFP1275HR	12	282	75	5.5	260	10.2	168	6.6	211	8.3	233/214	9.2/8.4	T5/T9	C	23
LFP1280HR	12	290	80	5											24.5
LFP1290HR	12	330	90	4.5	306	12	169	6.7	211	8.3	233/214	9.2/8.4	T5/T9	C	29.5
LFP12100HR	12	390	100	3.5	330	13	171	6.7	214	8.4	224/220	8.8/8.7	T5/T9	C	32.5
LFP12120HR	12	425	120	3.2	409	16.1	176	6.9	225	8.9	225/225	8.9/8.9	T5/T11	C	38
LFP12134HR	12	475	134	3.5	342	13.5	172	6.8	280	11	285	11.2	T11	C	43
LFP12140HR	12	500	140	3.2											46
LFP12150HR	12	535	150	3	485	19.1	172	6.8	240	9.4	242/240	9.5/9.4	T5/T11	C	47
LFP12200HR	12	710	200	2.8	522	20.6	238	9.4	218	8.6	238/221	9.4/8.7	T5/T11	C	65
LFP6200HR	6	710	200	3	321	12.6	176	6.9	226	8.9	246/229	9.7/9.0	T5/T11	A	32.5

High Temperature Battery Series Specifications

Voltage: 6V & 12V **Capacity:** FirstPower can produce high temperature battery which capacity from 0.3Ah to 3000Ah
Battery performance can be expected at the ambient temperatures at -15°C/5°F to 70°C/158°F

Model	Nominal Voltage (V)	Capacity (Ah)	Internal Resistance (mΩ)	Length		Dimensions Width		Height		Total Height		Terminal		Weight Kg
				mm	in	mm	in	mm	in	mm	in	Type	Position	
FP1270T	12	7	28	151	5.9	65	2.6	94	3.7	100	3.9	T1	F	2.25
FP12120T	12	12	19	151	5.9	98	3.9	95	3.7	101	4	T2	F	3.6
FP12180T	12	18	16	181	7.1	77	3	167	6.6	167/167	6.6/6.6	T3/T8	D	5.35
FP12240T	12	24	14	166	6.5	175	6.9	125	4.9	125/125	4.9/4.9	T3/T8	D	7.8
LFP6200T	6	200	2	321	12.6	176	6.9	226	8.9	246/229	9.7/9.0	T5/T11	A	32
LFP1233T	12	33	10	195	7.7	130	5.1	155	6.1	180/166	7.1/6.5	T7/T9	C	10
LFP1240T	12	40	8.5	197	7.8	165	6.5	170	6.7	170/170	6.7/6.7	T4/T9	D	13
LFP1265L	12	65	6	350	13.8	167	6.6	179	7	186/179	7.3/7.1	T5/T9	C	21
LFP1260T	12	60	7											21
LFP1270T	12	60	6.5	260	10.2	168	6.6	211	8.3	233/214	9.2/8.4	T5/T9	C	23.7
LFP1280T	12	80	5.5											25
LFP1290T	12	90	5.5	306	12	169	6.7	211	8.3	233/220	9.2/8.7	T5/T9	C	28.5
LFP12100T	12	100	4.5	330	13	171	6.7	214	8.4	224/220	8.8/8.7	T5/T9	C	32
LFP12120T	12	120	4	409	16.1	176	6.9	225	8.9	225/225	8.9/8.9	T5/T11	C	37
LFP12150T	12	150	3.5	485	19.1	172	6.8	240	9.4	242/240	9.5/9.5	T5/T11	C	46.5
LFP12200T	12	200	3	522	20.6	238	9.4	218	8.6	238/221	9.4/8.7	T5/T11	E	65
LFP12250T	12	250	2.6	521	20.5	269	10.6	220	8.7	242/223	9.5/8.8	T5/T11	E	78

FirstPower® ENERGY IS FOREVER

GELLED(GELLED ELECTROLYTE) BATTERY

1. Introduction

The FirstPower gelled battery uses the sealed gel technology and is designed for high reliable, maintenance-free power for renewable energy applications. Depending on the advantage gel technology, optimum grid and plate design, the FirstPower gel battery offers highest power and reliability for your equipments.

2. Features & Benefits

• Gelled electrolyte By the high-tech gelled electrolyte, gel battery is completely leakproof and spillproof for easy installation in virtually any position even under water. It eliminates ultra deep discharge and acid stratification damage.

• Critical pressure control valve maintains critical internal pressure while safety expelling excess gas generated during overcharging, for longer battery life. 100% tested for highest performance.

• Brushed plate lugs provide the benefits. Low-resistance straps with outstanding lug-to-knit and eliminate dropped and loose plates that reduce performance and shorten battery life.

• Heavy-duty plates with high density and deep-cycle oxide active materials, advanced grid alloy for deep cycle use, provide quick recharge ability and superior deep-cycle and float performance in the most demanding applications.

• Be good at recovery from deep discharge Gelled battery has a tight structure and relative supplies of gelled electrolyte, always has some ions left to conduct charge current resulting in the excellent recovery from deep discharge characteristics.

• Completely maintenance-free use the "recombination" technique to replaces the oxygen and hydrogen normally lost in a met cell. Particularly in deep cycle applications (normally use the wet battery), and offer a really maintenance free battery.

• Tank formed plates offer optimum computerized formation, additional quality control and improved voltage matching.

• Premium glass mat separators reduce gassing and improve gel filling and electron flowing, providing more power.

• Well low temperature performance, even at very low temperature the gelled electrolyte will not be frozen and provide a well performance. Gel battery is well suited to low temperature applications.

• Superior life. The FirstPower gelled battery maintain a long cycle and float life, provide a lowest cost per month or lowest cost per cycle

3. Applications

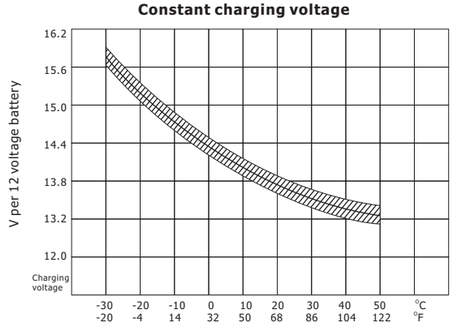
- Water pumping
- Wind generation
- Cathodic protection
- Communications
- Solar system
- Electric powered vehicles
- Golf cars
- Commercial deep cycle applications
- Power plant
- UPS systems

4. Charging

While the FirstPower gelled battery will accept a charge extremely well due to its low internal resistance.

For using the sealed design, over-charging will dry out the electrolyte by driving the oxygen and hydrogen out of the battery, through the safety valves. Capacity is reduced and life is shortened If a battery is continually under-charged, a power robbing layer of sulfate will buildup on the plates. Battery performance is reduce, life is reduced.

So what is important for gelled battery that is: charge at least 2.30V/Cell volts but no more than 2.35V/Cell volts at 68°F(20°C). Constant current chargers should never be used on gelled battery.

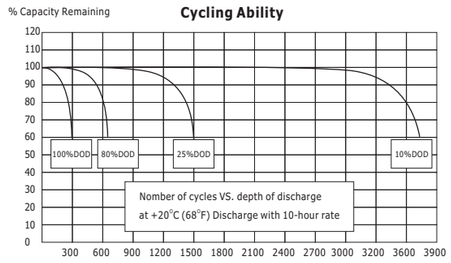


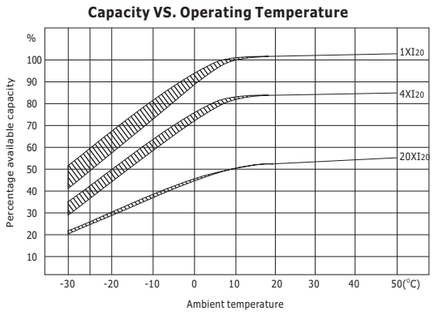
Constant charging voltage: Shown is the constant charging voltage in relation to the ambient temperature. The bandwidth shows a tolerance of ±30mV/Cell. This constant voltage is suitable for continuing charging and cyclic operation. In a parallel standby mode it always keeps battery in a fully charged state; in a cyclic mode, it provide for a rapidly recharging and highly cyclic performance.

5. Discharge & cycling ability

Battery discharge capacity and cycle life are depended on the depth of discharge (DOD), and the ambient temperature.

FiretPower gelled battery is designed to the "acid limited." This means that the power in the acid is used before the power in the plates. This design prevents the plates from ultra-deep discharges. Ultra-deep discharging is what causes life-shorting plates shedding and accelerates positive grid corrosion which destroy a battery.





Capacity vs. operating temperatures: shown are the changes in capacity for a wider ambient temperature range, giving the available capacity, as a percentage of the rated capacity, at different ambient temperatures, for 3 different load examples, with uninterrupted discharge to the appropriate discharge cut-off voltage.

The values for the upper edge of the curves were obtained from charging at an ambient temperature of +20℃ with a voltage limit to 2.30V/Cell. For the lower edge, charging was carried out at the specified ambient temperature. The curves show the behavior of battery after a number of cycles.

Gelled Battery Series Specifications

Voltage: 2V, 6V, 12V **Capacity:** FP Type: 12V12AH~12V28AH; LFP Type: 12V33AH~12V250AH; CFP Type: 2V100AH~2V3000AH
Charge voltage: Cycle use: 2.30~2.35V/cell; Float use: 2.25~2.30V/cell **Charge current:** The initial current less then 0.3CA

Model	Nominal Voltage (V)	Capacity (Ah)	Internal Resistance (mΩ)	Dimensions								Terminal		Weight Kg
				Length		Width		Height		Total Height				
				mm	in	mm	in	mm	in	mm	in	Type	Position	
LFPG6100	6	100	3.3	194	7.6	170	6.7	205	8.1	210	8.3	T9	A	15.8
LFPG6200	6	200	2.2	321	12.6	176	6.9	226	8.9	246/229	9.7/9.0	T5/T11	A	31
LFPG1233	12	33	11	195	7.7	130	5.1	155	6.1	180/166	7.1/6.5	T7/T9	C	10.2
LFPG1240	12	40	9.5	197	7.8	165	6.5	170	6.7	170/170	6.7/6.7	T4/T9	D	13
LFPG1255	12	55	7	229	9	138	5.4	208	8.2	230/211	9.1/8.3	T5/T9	C	17.5
LFPG1265	12	65	6.6	350	13.8	167	6.6	179	7	186/179	7.3/7.1	T5/T9	C	21
LFPG1260	12	60	7.7											19.2
LFPG1270	12	70	7	260	10.2	168	6.6	211	8.3	233/214	9.2/8.4	T5/T9	C	22.5
LFPG1280	12	80	6											23.8
LFPG12100	12	100	5	330	13	171	6.7	214	8.4	224/220	8.8/8.7	T5/T9	C	30.5
LFPG12120	12	120	4.4	409	16.1	176	6.9	225	8.9	225/225	8.9/8.9	T5/T11	C	35.5
LFPG12134	12	134	4.2	342	13.5	172	6.8	280	11	285	11.2	T11	C	42.5
LFPG12150	12	150	3.9	485	19.1	172	6.8	240	9.4	242/240	9.5/9.4	T5/T11	C	44.5
LFPG12180	12	180	3.6	494	19.4	206	8.1	209	8.2	235/235	9.3/9.3	T20/T11	E	54.5
LFPG12200	12	200	3.3	522	20.6	238	9.4	218	8.6	238/221	9.4/8.7	T5/T11	E	62
LFPG12250	12	250	2.9	521	20.5	269	10.6	220	8.7	242/223	9.5/8.8	T5/T11	E	75
CFPG2100	2	100	0.9	171	6.7	72	2.8	206	8.1	209	8.2	T10	A	6
CFPG2150	2	150	0.7	171	6.7	102	4	206	8.1	211	8.3	T10	A	8.5
CFPG2200	2	200	0.95	173	6.8	109	4.3	330	13	364	14.3	T10	G	14
CFPG2300	2	300	0.8	171	6.7	151	5.9	330	13	364	14.3	T10	G	19.5
CFPG2400	2	400	0.65	210	8.3	176	6.9	330	13	367	14.4	T10	H	26.5
CFPG2500	2	500	0.55	241	9.5	171	6.7	330	13	365	14.4	T10	H	31.5
CFPG2600	2	600	0.5	302	11.9	175	6.9	330	13	367	14.4	T10	H	38
CFPG2800	2	800	0.4	410	16.1	175	6.9	330	13	367	14.4	T10	I	53.5
CFPG21000	2	1000	0.3	475	18.7	175	6.9	330	13	367	14.4	T10	I	64
CFPG21500	2	1500	0.22	400	15.7	350	13.8	345	13.6	382	15	T10	J	97
CFPG22000	2	2000	0.2	490	19.3	350	13.8	345	13.6	382	15	T10	K	130
CFPG23000	2	3000	0.13	710	28	350	13.8	345	13.6	382	15	T10	K	198
CFPG2200S	2	200	0.9	206	8.1	103	4.1	355	14	390	15.4	T10	G	15.5
CFPG2250S	2	250	0.8	206	8.1	124	4.9	355	14	390	15.4	T10	G	19
CFPG2300S	2	300	0.75	206	8.1	145	5.7	355	14	390	15.4	T10	G	21
CFPG2350S	2	350	0.7	206	8.1	124	4.9	471	18.5	506	19.9	T10	G	24
CFPG2400S	2	400	0.6	206	8.1	145	5.7	471	18.5	506	19.9	T10	G	27.5
CFPG2500S	2	500	0.5	206	8.1	166	6.5	471	18.5	506	19.9	T10	G	32
CFPG2600S	2	600	0.45	206	8.1	145	5.7	646	25.4	681	26.8	T10	G	43
CFPG2800S	2	800	0.4	210	8.3	191	7.5	646	25.4	681	26.8	T10	H	60
CFPG21000S	2	1000	0.33	233	9.2	210	8.3	646	25.4	681	26.8	T10	H	71
CFPG21200S	2	1200	0.28	275	10.8	210	8.3	646	25.4	681	26.8	T10	H	87
CFPG21500S	2	1500	0.22	275	10.8	210	8.3	796	31.3	831	32.7	T10	H	105
CFPG22000S	2	2000	0.2	399	15.7	210	8.3	772	30.4	807	31.8	T10	I	150
CFPG22500S	2	2500	0.17	487	19.2	212	8.3	772	30.4	807	31.8	T10	I	187
CFPG23000S	2	3000	0.13	576	22.7	212	8.3	772	30.4	807	31.8	T10	I	223

CFPV(OPzV) BATTERY

Applications

- Telecommunication equipment
- Electronic instruments
- Fire alarm and security devices
- UPS power supply
- Solar power system
- Wind power system

The **CFPV** (OPzV)series stationary batteries are the newly products which were developed at the end of 2005. The performances meet the standard **DIN40742**

Characteristics

- Gelled electrolyte, no flow, no leakage or no gradation of sulfuric acid.
- The positive plate is tubular plate, which can effectively prevent the active materials from falling off.
- PVC-SiO_2 separator, which is special for gel battery with tiny holes. The separator has high volume porosity, low electrical resistance and excellent wettability
- Maintenance-free during the whole service life.
- Low self discharge rate
- Proof against deep discharge according to DIN 43539 T5

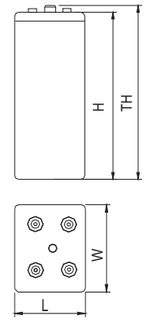
Technical parameters

Environment temperature	-20℃～50℃
Environmental temperature for best utilization	25℃±5℃
Float charging voltage	2.25V/unit
Equalization voltage	2.35V/unit
Temperature adjustment coefficient	-3mV/℃/unit
Max charging current	$0.20C_{10}A$
Design service life	20 years(20℃)
Self-discharge rate	Less than 40% after 2-year storage at 20℃
Recover performance after deep discharge	The battery can be recharged to 95% of the rated capacity after 12-hour deep discharge
The gas recombination efficiency exceeds	More than 99%

CFPV(OPzV) Battery Series Specifications

Voltage: 2V **Capacity:** 200AH to3000AH
Service life: Designed floating service life 20 years at 20°C/68°F
Designed cycle life more than 1200 cycles at 80% DOD at 20°C/68°F

Type	Rated Voltage (V)	Rated Capacity (Ah)	Max Dimension（mm） (L)	(W)	(H)	(TH)	Weight(app.) ±5%(Kg)	Terminal
CFPV2200	2	200	103	206	354	390	18	T10
CFPV2250	2	250	124	206	354	390	21.5	
CFPV2300	2	300	145	206	354	390	25	
CFPV2350	2	350	124	206	470	506	28.5	
CFPV2420	2	420	145	206	470	506	33	
CFPV2500	2	500	166	206	470	506	38.5	
CFPV2600	2	600	145	206	645	681	45	
CFPV2770	2	770	253	210	470	506	60	
CFPV2800	2	800	191	210	645	681	62	
CFPV21000	2	1000	233	210	645	681	73	
CFPV21200	2	1200	275	210	645	681	87	
CFPV21500	2	1500	275	210	795	831	110	
CFPV22000	2	2000	399	210	772	807	152	
CFPV22500	2	2500	487	212	772	807	185	
CFPV23000	2	3000	576	212	772	807	222	



CFPS(OPzS) & LFPS(OPzS) BATTERY

Applications

- Telecommunication equipment
- Electronic instruments
- Fire alarm and security devices
- UPS power supply
- Solar power system
- Wind power system

The **CFPS(2V)** and **LFPS(6V/12V)** series stationary batteries (**OPzS battery**) are the newly products which were developed at the end of 2005. The performances meet the standard DIN40736 and IEC60896-21

Characteristics

- Positive plate:
  It is a tubular plate that can prevent the active material from falling off. The grid of positive plate is Pb-Sb multi-alloy
- Separator:
  With the combined application of porous rubber and porous PVC, the separator has a high porosity and good corrosion-resistance
- Acid-proof bolt:
  It is of a special shape of funnel having the function of filtering acid smog and retarding flame. It can measure the density and temperature of electrolyte.
- The design life is more than 20 years
- Ensuring sufficient electrolyte for battery discharge

CFPS(OPzS) & LFPS(OPzS) Battery Series Specifications

Voltage: 2V, 6V & 12V **Capacity:** 50AH to 3000AH
Service life: Designed floating service life 20 years at 20°C/68°F
Designed cycle life more than 1200 cycles at 80% DOD at 20°C/68°F

Type	Rated Voltage (V)	Rated Capacity (Ah)	Max Dimension（mm）				Battery weight(app.)(Kg)			Number of post of the same polarity	Terminal
			(L)	(W)	(H)	(TH)	Dry	Wet	Acid weight (d=1.24kg/l)		
CFPS2100	2	100	103	206	354	409	8.5	13.5	5	1	
CFPS2150	2	150	103	206	354	409	11	15.5	4.5	1	
CFPS2200	2	200	103	206	354	409	13.5	17.5	4	1	
CFPS2250	2	250	124	206	354	409	16	21	5	1	
CFPS2300	2	300	145	206	354	409	18.5	24.5	6	1	
CFPS2350	2	350	124	206	470	525	21	28	7	1	
CFPS2420	2	420	145	206	470	525	24.5	33	8.5	1	
CFPS2500	2	500	166	206	470	525	28	38	10	1	
CFPS2600	2	600	145	206	645	700	34	46	12	1	
CFPS2770	2	770	253	210	472	527	42.5	58	15.5	1	
CFPS2800	2	800	191	210	645	700	44	60	16	2	
CFPS21000	2	1000	233	210	645	700	52	72	20	2	T10
CFPS21200	2	1200	275	210	645	700	62	86	24	2	
CFPS21500	2	1500	275	210	795	850	75	105	30	2	
CFPS22000	2	2000	399	210	771	826	108	150	42	3	
CFPS22500	2	2500	487	212	771	826	130	183	52	4	
CFPS23000	2	3000	576	212	771	826	157	220	63	4	
LFPS1250	12	50	272	205	335	390	25.5	37	11.5	1	
LFPS12100	12	100	272	205	335	390	39	48	9	1	
LFPS12150	12	150	380	205	335	390	54	68	14	1	
LFPS6200	6	200	272	205	335	390	35	45.5	10.5	1	
LFPS6250	6	250	380	205	335	390	45	59	14	1	
LFPS6300	6	300	380	205	335	390	51	65	14	1	

MOTOR CYCLE BATTERY

The FirstPower Motorcycle battery is engineered to protect against seepage and corrosion, deliver high cranking power, even when the weather’s dealing its worst. It's the rugged, reliable and dependable battery that customers are looking for. The high-tech. Power-boosting design, FirstPower Motorcycle battery can provide right battery for right job – that's where it all starts.

The industry standard for motorcycles snowmobile and riding mowers, our motorcycle battery offers high cranking power, nice cold cranking performance, minimal internal resistance, maximum power.

With the lead-calcium technology and the AGM used, our Dry Charged Maintenance-free type and Maintenance-free VRLA type motorcycle battery assume really sealed, Never needs refilling, offer a really maintenance-free battery for you.

FirstPower Motorcycle batteries include three types:

A. Conventional Type

- provide high cranking power.
- resist vibration damage packs in extra plates.
- resist corrosion for longer battery life.
- resist damage from gas, oil, impact.
- protects against seepage and corrosion.

B. Dry Charged Maintenance-free Type

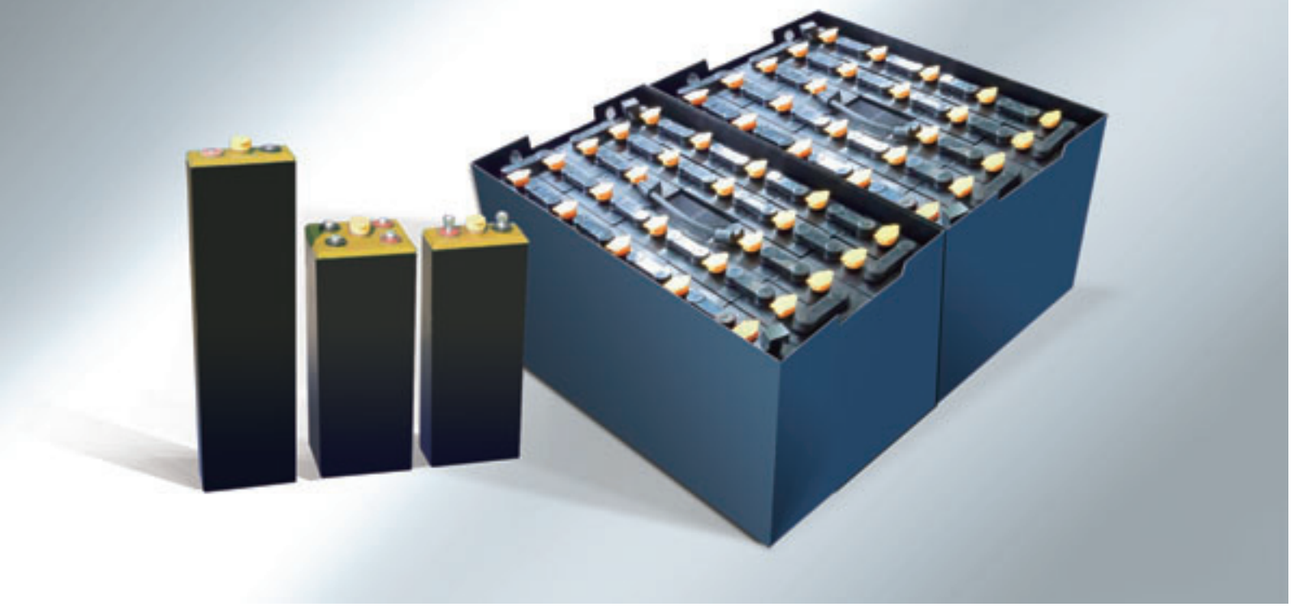
- never need to check electrolyte or add water ever again.
- can be used immediately after filling electrolyte.
- higher cold cranking amps.
- longer and need less charging in standby on storage mode.
- dramatically reduce battery-killing plates sulfation.
- virtually no possibility of leaks pumping up starting power.

C. Maintenance-free Sealed VRLA Type

- Non-spillable (no acid leakage).
- Can be used immediately and not need activation procession.
- High cranking current for rigors of cold weather starting.
- resist vibration damage packs in extra plates.
- resist corrosion for longer battery life.
- resist damage from gas, oil, impact.

Motorcycle Battery Series Specifications

Type	Model	Voltage (V)	Capacity (AH)	Dimensions (mm)			Terminal Position	Terminal Type	Weight(kg)	
				Length	Width	Height			Battery	Acid
Conventional motorcycle battery	6N11A-1B	6	11	122	59	130		1	1.2	0.58
	12N4-3B	12	4	117	70	94		4	1.1	0.42
	12N5-3B	12	5	121	61	130		1	1.4	0.51
	12N5-D	12	5	138	72	95		1	1.4	0.52
	12N7-3B	12	7	135	75	131		1	1.9	0.77
	12N7-4B	12	7	135	75	131		1	1.9	0.77
	12N9-3B	12	9	135	75	136		1	2.2	0.75
	12N9-4B-1	12	9	135	75	136		1	2.2	0.75
	12N16-3A	12	16	175	100	157		1	4.2	1.70
	■ Tough durable polypropylene containers which are lighter weight and resistance to impact and stress damage. ■ High cranking current-for rigors of cold weather starting. ■ Extra power for greater energy reserves.									
Dry charged maintenance-free sealed lead-acid motorcycle battery (with acid bottle)	YTX3L-BS	12	3	98	56	111		1	1.1	0.30
	YTX4AL-BS	12	3	120	71	91		4	1.3	0.35
	YTX4L-BS	12	3	114	70	87		4	1.2	0.33
	YTX5L-BS	12	4	114	70	106		4	1.4	0.38
	YTX5AL-BS	12	5	120	61	126		1	1.4	0.44
	YTX7L-BS	12	6	114	70	130		4	2.0	0.54
	YTX7A-BS	12	6	151	87	94		4	1.9	0.54
	YTX9-BS	12	8	151	87	106		4	2.3	0.60
	YTX12-BS	12	10	151	87	131		4	2.6	0.90
	YTX14-BS	12	12	151	87	146		4	3.1	1.1
	■ Can be used immediately after filling electrolyte ■ No need to check electrolyte level or add water ever again.									
Maintenance-free sealed valve regulated lead-acid motorcycle battery (no acid bottle).	FPM4-6A	6	4	70	48	100		Plug	0.8	
	FPM4-6B	6	4	71	71	92		Plug	0.9	
	FPM6-6	6	6	97	55	115		1	1.2	
	FPM2.5-12	12	2.5	80	70	105		Plug	1.15	
	FPM3-12	12	3	98	55	108		1	1.25	
	FPM4-12	12	4	114	70	88		4	1.55	
	FPM5-12A	12	5	120	61	131		1	1.8	
	FPM5-12B	12	5	114	70	108		4	1.75	
	FPM6.5-12	12	6.5	137	66	102		1	2	
	FPM7-12A	12	7	148	60	130		1	2.5	
	FPM7-12B	12	7	151	87	95		4	2.6	
	FPM7-12C	12	7	114	69	132		4	2.6	
	FPM9-12A	12	9	135	76	139		1	2.9	
	FPM9-12B	12	9	151	87	107		4	3	
	FPM12-12	12	12	153	89	130		1	3.7	
	■ Non-spillable (No acid leakage) ■ Can be used immediately no filling acid ■ High cranking current-for rigors of cold weather starting.									



TRACTION BATTERY

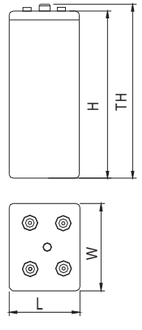
FirstPower traction batteries are used in electrically powered vehicles like forklift, tow truck, power trolley, lifting platforms and other industrial traction application. FirstPower traction batteries are made to BS and DIN specifications.

Benefits:

- Assembled in a high grade plastic container.
- Tubular positive plates and pasted negative plates.
- Longer life in cyclic use-more than 1600 cycles up to 80% depth of discharge.
- Low energy costs.
- Low water costs.
- Avoidance of insufficient discharging and of overcharging.
- Suitable for all weather conditions.

Maintenance:

- Allow the battery to cool down after every charging.
- Top up the battery at the end of the charge cyclic with the charging on and allow the battery to gas freely so that the specific gravity becomes uniform in the cell. Never add water to a discharged battery
- Keep the battery clean and dry. Check the terminal connectors for tightness.



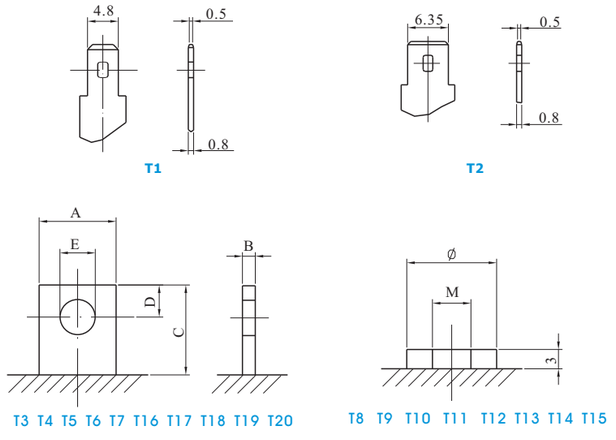
Traction Battery: BS Specifications

Cell Type	Nominal Capacity (Ah)			Charging Intensity(A)		Dimension（mm）				Weight(Kg)	
	5h	1h	0.5h	Intial	Finish	(L)	(W)	(H)	(TH)	Dry	Wet
2FPB46	46	31	23	8	2		45			2.5	3.8
3FPB70	70	45	35	12	3		61			3.2	5.0
4FPB92	92	60	46	16	4		77			5.0	6.5
5FPB115	115	76	58	20	5		93			6.0	7.8
6FPB138	138	90	69	23	6	158	109	200	230	7.0	9.1
7FPB162	162	105	80	27	7		125			7.6	10.5
8FPB185	185	120	92	31	8		141			9.0	11..2
9FPB208	208	135	105	35	9		157			10.0	13.2
10FPB230	230	150	116	39	10		173			11.1	14.50
2FPB65	65	43	32	11	3		45			3.4	5.0
3FPB96	96	62	48	16	4		61			4.3	6.7
4FPB128	128	83	65	22	6		77			6.3	8.2
5FPB160	160	105	80	27	7		93			7.3	9.5
6FPB192	192	125	96	32	8	158	109	258	288	8.4	11.0
7FPB225	225	146	112	38	10		125			9.0	12.8
8FPB258	258	166	128	43	11		141			11.5	15.5
9FPB290	290	188	145	48	12		157			13.0	16.9
10FPB320	320	208	160	54	14		173			13.2	18.5
2FPB85	85	55	42	15	4		45			4.3	6.6
3FPB128	128	82	63	21	6		61			5.4	8.5
4FPB168	168	110	85	28	7		77			8.3	10.7
5FPB210	210	138	105	35	9		93			10.0	13.0
6FPB252	252	165	125	42	11	158	109	325	355	12.0	15.8
7FPB295	295	192	146	50	13		125			12.2	17.0
8FPB336	336	220	168	56	14		141			16.2	21.5
9FPB378	378	245	188	64	16		157			18.0	23.0
10FPB420	420	275	208	70	18		173			19.0	24.0
2FPB110	110	72	55	20	5		45			6.0	8.0
3FPB165	165	108	83	28	7		61			8.3	10.3
4FPB220	220	145	110	37	10		77			10.0	13.0
5FPB275	275	180	138	46	12		93			12.0	15.2
6FPB330	330	215	165	55	14	158	109	396	426	14.0	18.5
7FPB385	385	251	193	65	17		125			16.0	22.0
8FPB440	440	288	220	75	19		141			18.5	24.5
9FPB495	495	322	248	84	21		157			20.0	27.0
10FPB550	550	360	275	92	23		173			22.0	30.0

Traction Battery: DIN Specifications

Cell Type	Nominal Capacity (Ah)			Charging Intensity(A)		Dimension（mm）				Weight(Kg)	
	5h	1h	0.5h	Intial	Finish	(L)	(W)	(H)	(TH)	Dry	Wet
2FPD100	100	65	50	17	5	198	45	265	300	4.8	7.2
3FPD150	15	96	75	25	7		64			7.1	9.5
4FPD200	200	130	100	35	9		82			9.6	11.9
5FPD250	25	164	125	42	11		101			11.6	14.2
6FPD300	300	196	150	50	13		118			13.5	17.0
7FPD350	350	229	175	60	15		137			16.0	21.0
8FPD400	400	260	200	67	17		155			18.3	22.2
9FPD450	450	295	225	75	19		172			21.0	26.2
10FPD500	500	325	250	85	21		192			22.8	30.0
2FPD120	120	78	65	20	6	198	45	330	365	6.6	9.3
3FPD180	180	118	98	30	9		64			9.5	13.5
4FPD240	240	156	130	40	12		82			12.2	15.3
5FPD300	300	195	163	50	15		101			15.0	18.6
6FPD360	360	239	195	60	18		118			17.4	23.8
7FPD420	420	275	228	72	21		137			20.5	27.3
8FPD480	480	315	260	80	24		155			23.0	21.5
9FPD540	540	350	293	92	27		172			25.5	32,5
10FPD600	600	390	325	100	30		192			28.0	40.2
2FPD160	160	105	80	27	7	198	45	400	435	8.0	10.1
3FPD240	240	156	120	40	10		64			11.2	15.0
4FPD320	320	208	160	54	14		82			14.5	18.7
5FPD400	400	260	200	67	17		101			17.7	23.0
6FPD480	480	315	240	80	20		118			20.5	27.0
7FPD560	560	365	280	94	24		137			24,0	32.0
8FPD640	640	418	320	107	27		155			27.5	36.0
9FPD720	720	468	360	120	30		172			33.0	41.0
10FPD800	800	520	400	135	34		192			34.5	45.2
2FPD180	180	120	92	30	7	198	45	465	500	9.5	11.5
3FPD270	270	180	138	46	11		64			13.0	16.5
4FPD360	360	240	185	61	15		82			17.0	22.2
5FPD450	450	300	230	76	19		101			21.0	26.5
6FPD540	540	360	276	92	23		119			24.0	31.5
7FPD630	630	420	322	107	27		137			28.0	36.5
8FPD720	720	478	368	122	30		155			32,5	43.6
9FPD810	810	538	415	138	34		173			35.5	48.0
10FPD900	900	596	460	153	38		192			39.5	53.0
2FPD210	210	137	105	35	9	198	45	510	545	10.5	12.5
3FPD315	315	205	158	53	14		65			14.2	19.3
4FPD420	420	275	210	70	18		83			18.2	23.5
5FPD525	525	342	265	88	22		101			22.0	28.6
6FPD630	630	410	315	105	27		119			26.5	33.8

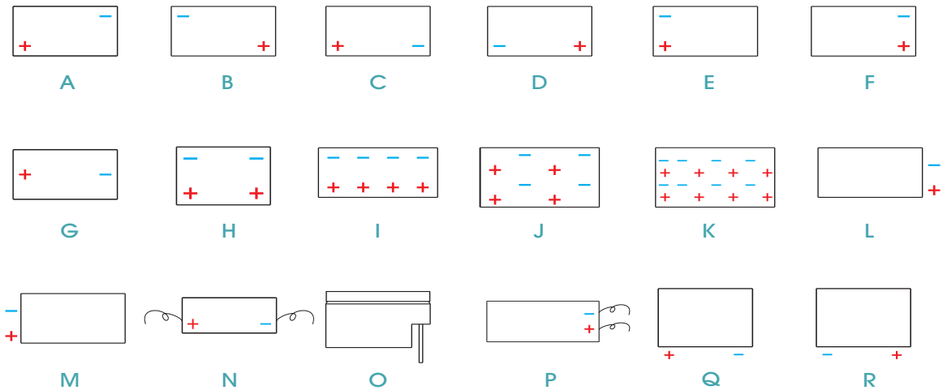
Terminal Types



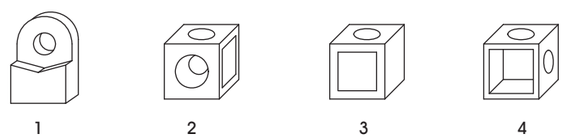
Type	A	B	C	D	E	Material
T3	12	2.0	14	5.0	5.5	Cu
T4	20	3.0	16	7.0	6.0	Cu
T5	22	3.5	22	8.5	8.0	Cu
T6	17	9.0	18	8.0	6.0	Pb
T7	17	6.0	16	7.0	8.0	Pb
T16	20	3.0	18	7.5	8.0	Cu
T17	18	7.0	20	7.5	7.0	Pb
T18	23	7.0	19	8.5	7.0	Pb
T19	25	7.0	24	10.5	9.0	Pb
T20	27	8.0	29	12.0	9.0	Pb

Type	M	Ø	Material
T8	5	12	Cu
T9	6	14	Cu
T10	8	20	Cu
T11	8	16	Cu
T12	8	14	Cu
T13	10	20	Cu
T14	8	18	Cu
T15	6	16	Cu

Terminal Position



Motor Cycle Battery Terminal

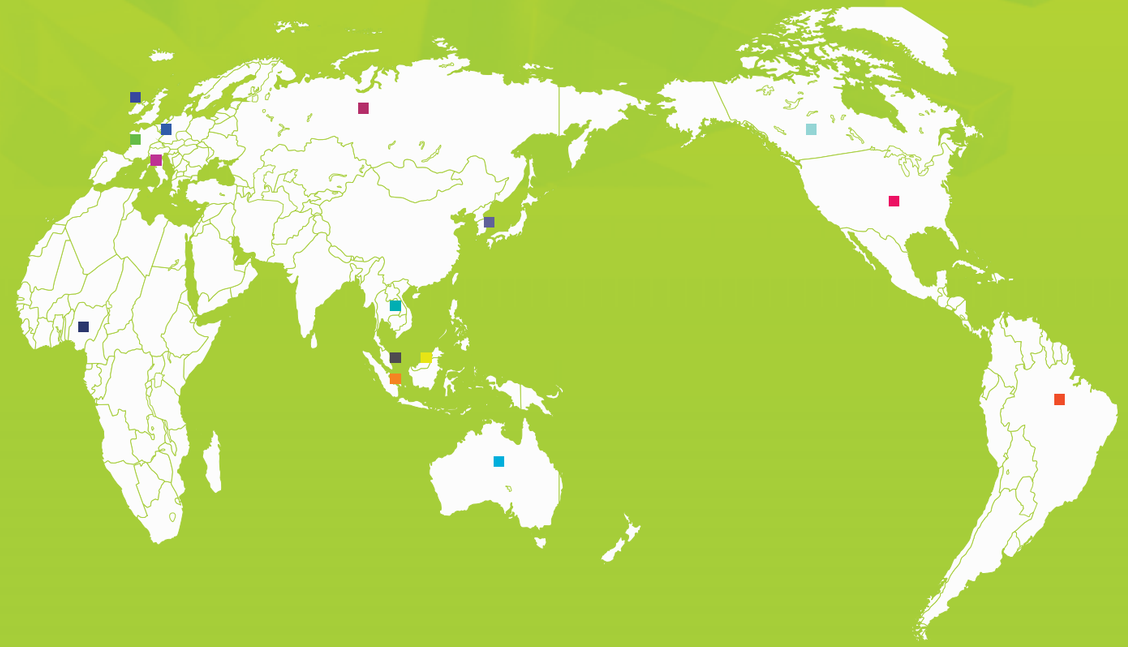


HANDLING PRECAUTIONS

Charging and Handling Precautions for FirstPower VRLA Batteries as Following.

- Never charge the battery in a sealed container.
- Never disassemble the battery.
- Never short-circuit battery terminals.
- Never incinerate batteries, for they may explode.
- Do not press and/or bend the terminals, or overheat them.
- Do not mix old and new batteries together, neither use batteries of different types or brands.
- Do not dispose of with household waste.
- Be sure to use the specified charger for battery, and follow the charging instructions correctly.
- Be sure to charge the batteries between the temperatures 0°C/32°F to 45°C/113°F.
- Be sure to position batteries securely, protecting them from abnormal shocks and /or vibration.
- Be sure to keep sufficient space between batteries for ventilation (where possible > 10mm).
- Be sure to install batteries in a cool and well ventilated place.
- The surrounding temperature must remain between-20°C/4°F to 50°C/122°F during storage.
- Recharge the batteries at least every 6 months during storage.
- Be sure to consult FirstPower engineers any time you are to use FirstPower VRLA batteries for your products, or preparing your technical specifications of FirstPower VRLA batteries.

DISTRIBUTION



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