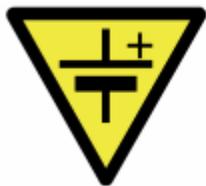




# LiFePO<sub>4</sub> Cylindrical battery cells

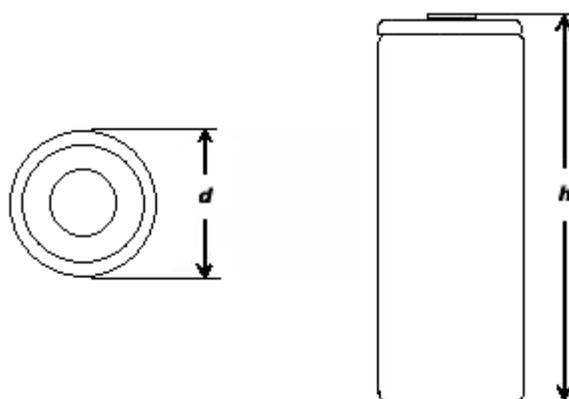


**GWL  
POWER**

## Nominal technical specification of the LiFePO4 Cylindrical battery cells

No.	Model	LFC 003Ah		LFC 005Ah		LFC 008Ah		LFC 010Ah		Remark
1	Rated Capacity	Nominal	3000mAh	Nominal	5,000mAh	Nominal	8,000mAh	Nominal	10,000mAh	Standard discharge (0.2C) after standard charge.
		Minimum	2950mAh	Minimum	4,750mAh	Minimum	7,600mAh	Minimum	9,500mAh	
2	Nominal Voltage	3.2V		3.2V		3.2V		3.2V		Mean Operation Voltage
3	Voltage at end of Discharge	2.0V		2.0V		2.0V		2.0V		Discharge Cut-off Voltage
4	Charging at end of Voltage	3.65V		3.65V		3.85V		3.85V		
5	Internal Impedance	≤28 mΩ		≤25 mΩ		≤10 mΩ		≤9 mΩ		Internal resistance measured at AC 1KHz after 50% charge. The measure must uses the new batteries that within one week after shipment and cycles no more that 5 times
6	Standard charge	Constant Current 0.2C, Constant Voltage 3.65V 0.02C cut-off		Constant Current 0.2C Constant Voltage 3.65V 0.02C cut-off		Constant Current 0.2C Constant Voltage 3.85V 0.01C cut-off		Constant Current 0.2C Constant Voltage 3.85V 0.01C cut-off		Charge time: Approx 8.0h
7	Standard discharge	Constant Current 0.2C end Voltage 2.0V		Constant Current 0.2C end Voltage 2.0V		Constant Current 0.2C end Voltage 2.0V		Constant Current 0.2C end Voltage 2.0V		
8	Fast charge	Constant Current 1C Constant Voltage 3.65V 0.02C cut-off		Constant Current 1C Constant Voltage 3.65V 0.02C cut-off		Constant Current 1C Constant Voltage 3.85V 0.01C cut-off		Constant Current 1C Constant Voltage 3.85V 0.01C cut-off		Charge time: Approx 2.5h
9	Fast discharge	Constant Current 1C end Voltage 2.0V		Constant Current 1C end Voltage 2.0V		Constant Current 1C end Voltage 2.0V		Constant Current 1C end Voltage 2.0V		
10	Maximum Continuous Charge Current	1C		1C		1C		1C		
11	Maximum Continuous Discharge Current	3C		3C		3C		3C		
12	Operation Temperature Range	Charge:0~45℃		Charge:0~45℃		Charge:0~45℃		Charge:0~45℃		60±25%R.H. Bare Cell
		Discharge: -10~60℃		Discharge: -10~60℃		Discharge: -10~60℃		Discharge: -10~60℃		
13	Storage Temperature Range	Less than 1 year: -20~25℃		Less than 1 year: -20~25℃		Less than 1 year: -20~25℃		Less than 1 year: -20~25℃		60±25%R.H. at the shipment state
		Less then 3 months: -20~40℃		Less then 3 months: -20~40℃		Less then 3 months: -20~40℃		Less then 3 months: -20~40℃		
14	Weight	Approx: 85g		Approx: 190g		Approx: 240g		Approx: 305g		FYI
15	Cell Dimension	Height: (h): 65.0±0.3mm		Height: (h): 90.5 ±0.5mm		Height: (h): 107.0±0.5mm		Height: (h): 110.0±0.5mm		Initial Dimension
		Diameter: (d): 26.0±0.3mm		Diameter: (d): 32.3±0.3mm		Diameter: (d): 38.0±0.3mm		Diameter: (d): 42.0±0.3mm		

## Cylindrical battery cells LAYOUT: - Table with dimensions above....



### Warning – Important

#### 1. Handling of Cells Prohibition short circuit;

Never make short-circuit cell !

It generates very high current which causes heating of the cells and may cause electrolyte leakage are very dangerous.

The Li-Fe tabs may be easily short-circuited by putting them on conductive surface.

Such outer short circuit may lead to heat generation and damage of the cell.

An appropriate circuitry with PCM shall be employed to protect accidental short circuit of the battery pack.

#### 2. Notice for Designing Battery Pack

2.1 Pack toughness Battery pack should have sufficient strength and the Li-Fe cell inside should be protected from mechanical shocks.

2.2 Cell fixing The Li-Fe cell should be fixed to the battery pack by its large surface area.

No cell movement in the battery pack should be allowed.

2.3 Inside design No sharp edge components should be inside the pack containing the Li-Fe cell.

## 2.4 Tab connection Spot welding is recommended for Li-Fe tab connection method.

Battery pack should be designed that shear force are not applied to the Li-Fe tabs.

If apply manual solder met hod to connect tab with PCM.

Below notice is very important to ensure battery performance :

- ◆·The solder iron should be temperature controlled and ESD safe;
- ◆·Soldering temperature should not exceed 350°C;
- ◆·Soldering time should not be longer than 3s;
- ◆·Soldering times should not exceed 5 times, Keep battery tab cold down before next time soldering.
- ◆·Directly heat cell body is strictly prohibited, Battery may damaged by heat above approx.100°C.

## 2.5 For mishaps Battery pack should be designed not to generate heat even when leakage occurs due to mishaps.

- 1) Isolate PCM (Protection Circuit Module) form leaked electrolyte as perfectly as perfectly as possible.
- 2) Avoid narrow spacing between bare circuit patterns with different voltage.(Including around connector)
- 3) Li-Fe battery should not have liquid from electrolyte, but in case if leaked electrolyte as possible touch bare circuit patterns, higher potential terminal material may dissolve and precipitate at the lower potential terminal, and may cause short circuit, The design of the PCM must have this covered.

## 3. Notice for Assembling Battery Pack

Shocks at high temperature, or contacts of sharp edge components should not be allowed in battery pack assembling process.

## 4. Other Warnigs

### 4.1 Cell connection

- 1) Direct soldering of wire leads or devices to the cell is strictly prohibited.
- 2) Lead tabs with pre-soldering may cause damage of components, such as separator and insulator by heat generation.

### 4.2 Prevention of short circuit within a battery pack Enough insulation layers between wiring and the cells shall be used to maintain extra safety protection.

The battery pack shall be structured with no short circuit within the battery pack, which may cause generation of smoke or firing.

#### 4.3 Prohibition of disassembly

- 1) Never disassemble the cells! The disassembling may generate internal short circuit in the cell, which may cause gassing, firing, explosion ,or other problems.
- 2) Electrolyte is harmful Li-Fe battery should not have liquid from electrolyte flowing, but in case the electrolyte come into contact with the skin, or eyes, physicians shall slush the electrolyte immediately with fresh water and medical advice is to be sought.

#### 4.4 Prohibition of dumping of cells into fire

Never incinerate or dispose the cells in fire.

These may cause explosion of the cells, which is very dangerous and is prohibition.

#### 4.5 Battery cells replacement

The battery replacement shall be done only qualified and trained person.

#### 4.6 Prohibition of use of damaged cells

The cells might be damaged during shipping by shock.

If any abnormal features of the cells are found such as damages in a plastic envelop of the cell, deformation of the cell package smelling of an electrolyte leakage and others, the cells shall never be used any more.

### 5. **Period of Warranty**

GWL Power provide a guarantee for a manufacturing fault of 12 months from the date of delivery.

If you want extend this warranty period, please contact us.

### 6. **Storing the Batteries** The batteries should be stored at room temperature, charged to about 30% to 50% of capacity.

We recommend that batteries be charged about once per half a year to avoid over discharge.