



Product Specification Book of Hubei EVE Energy Co., Ltd.

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Product name: Square aluminum case lithium iron phosphate
battery

product model : LF32

size of product : 3.2V/32Ah

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Specification Document Revision History

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Catalogue

1	scope of application.....	1
2	product type.....	1
3	Nominal technical parameters.....	1
4	test condition.....	2
5	Battery performance.....	2
6	transport.....	4
7	keep in storage.....	4
	Appendix I: Two-dimensional diagram of battery.....	4
	Appendix II: Battery Coding Rules.....	5
	Appendix III: Battery Appearance Photographs.....	5
	Appendix IV: Electrical Performance Curve Diagram.....	6

1 Scope of Application

This standard describes the product type, basic performance, testing methods, and precautions for square aluminum-case lithium iron phosphate batteries manufactured by Hubei EVE Energy Co., Ltd. The product is applicable to vehicle power systems and energy storage systems.

2 Product Type

2.1 Product Name: Square Aluminum Case Lithium Iron Phosphate Battery

2.2 Model Specification: LF32

3 Nominal Technical Parameters

Order number	Project		Parameter	Remarks
1	Nominal capacity		32Ah	(25±2)°C, standard charge-discharge cycle. The incubator (25±2)°C meets the discharge capacity requirement of ≥ 32Ah at 0.5C.
2	Nominal voltage		3.2V	
3	Internal resistance (1 KHz)		≤1.5mΩ	
4	Standard charge and discharge	Charge/discharge current	0.5C/0.5C	(25±2)°C
		Charge and discharge cutoff voltage	3.65V/2.5V	
5	Maximum charge/discharge current	Continuous charging/discharging	1C/1C	N.A.
		Pulse charging/discharging (30s)	1C/2C	
6	Recommended SOC window		10%~90%	N.A.
7	Charging operating temperature		0°C~55°C	N.A.
8	Discharge operating temperature		-20°C~55°C	
9	Storage temperature	Short-term (within 1 month)	-20°C~45°C	N.A.
		Long-term (within 1 year)	0°C~35°C	
10	Storage humidity		<95%	
11	Self discharge rate		≤3% per month	(25±2)°C, 30%~50% SOC storage

12	Size	Width	148.3±0.5mm	N.A.
13		Thickness (300kgf,30%-40%SOC)	26.7±0.5mm	
14		Height (Subject Height)	91.5±0.5mm	
15		Height (total height)	94.3±0.5mm	
16		Polar axis center distance	114.6±0.3mm	
17	Battery weight		735±50g	

4 Test Condition

4.1 Test Environment Conditions

temperature : (25±2) °C

Relative humidity: 15%~90%

Atmospheric pressure: 86 KPa to 106 KPa

4.2 Standard Charging

At (25±2)°C, the battery was charged at a constant current of 0.5C (A) until reaching the charging limit voltage of 3.65V, followed by constant voltage charging until the current dropped below 0.05C (A).

4.3 Standard Discharge

The battery was discharged at a constant current of 0.5C (A) to the termination voltage of 2.5V under conditions of (25±2)°C.

5 Battery Performance

5.1 Electrical Properties

Order number	Project	Technical requirement	Test method
1	Discharge performance at 25°C and high rate	Discharge capacity/nominal capacity × 100% A) 0.5C (A) ≥100% B) 1.0C (A) ≥100%	After standard charging, the battery was left for 1 hour and then discharged at 0.5C (A) and 1.0C (A) rates to 2.5V. If the discharge capacity fails to meet technical requirements, this test may be repeated up to 3 times.

2	Discharge performance at different temperatures	Discharge capacity/nominal capacity $\times 100\%$ A) $\geq 95\%$ at 55°C B) $\geq 70\%$ at -20°C	A) After standard charging, the battery was left at $55 \pm 2^{\circ}\text{C}$ for 5 hours and discharged at 1.0C (A) rate to 2.5V. B) After standard charging, the battery was stored at $20 \pm 2^{\circ}\text{C}$ for 24 hours and discharged at 1.0C (A) rate to 2.0V.
3	Charge retention and recovery capability at 25°C	Residual capacity $\geq 95\%$ of nominal capacity; Recovery capacity $\geq 97\%$ of nominal capacity	After standard charging of the battery, it was left in open circuit for 28 days; discharge at 1.0C (A) to 2.5V was recorded as the remaining capacity; after another standard charging, it was placed aside for 30 minutes, and discharge at 1.0C (A) to 2.5V was recorded as the recovery capacity.
4	25°C cycling life	≥ 3500 cycles @1C/1C	At $(25 \pm 2)^{\circ}\text{C}$, under a 300 kgf clamp: charge the battery at a constant current and voltage of 1.0C (A) to 3.65 V with a cutoff current of 0.05C (A), followed by a 30-minute rest period. Then discharge at a constant current of 1.0C (A) to 2.5 V, followed by another 30-minute rest period. Repeat this cycle until the capacity decay reaches 80% of the nominal capacity.
5	45°C cycling life	≥ 1800 times @1C/1C	$(45 \pm 2)^{\circ}\text{C}$, battery under 300kgf clamp: charge at 1.0C(A) constant current constant voltage to 3.65 V, cut off current 0.05C(A), rest 30min, discharge at 1.0C(A) constant current to 2.5V, rest 30min, then proceed to the next cycle until the capacity decay to 80% of the nominal capacity.
6	Life termination management	Capacity/nominal capacity $< 70\%$	During battery operation, the battery should be discontinued when its service life exceeds the specified termination criteria.

5.2 Safety Performance

Order number	Project	Technical requirement	Test method
1	Overdischarge	Non-explosive and non-flammable	Reference: GB/T 36276-2018 "Lithium-ion Batteries for Electric Power Storage"
2	Over-charging	Non-explosive and non-flammable	
3	Short	Non-explosive and non-flammable	
4	Decline	Non-explosive, non-flammable, and non-leaky	

5	Heat	Non-explosive and non-flammable	
6	Crimp	Non-explosive and non-flammable	
7	Thermorunaway	Non-explosive and non-flammable	
8	Cyclone	Non-explosive, non-flammable, and non-leaky	

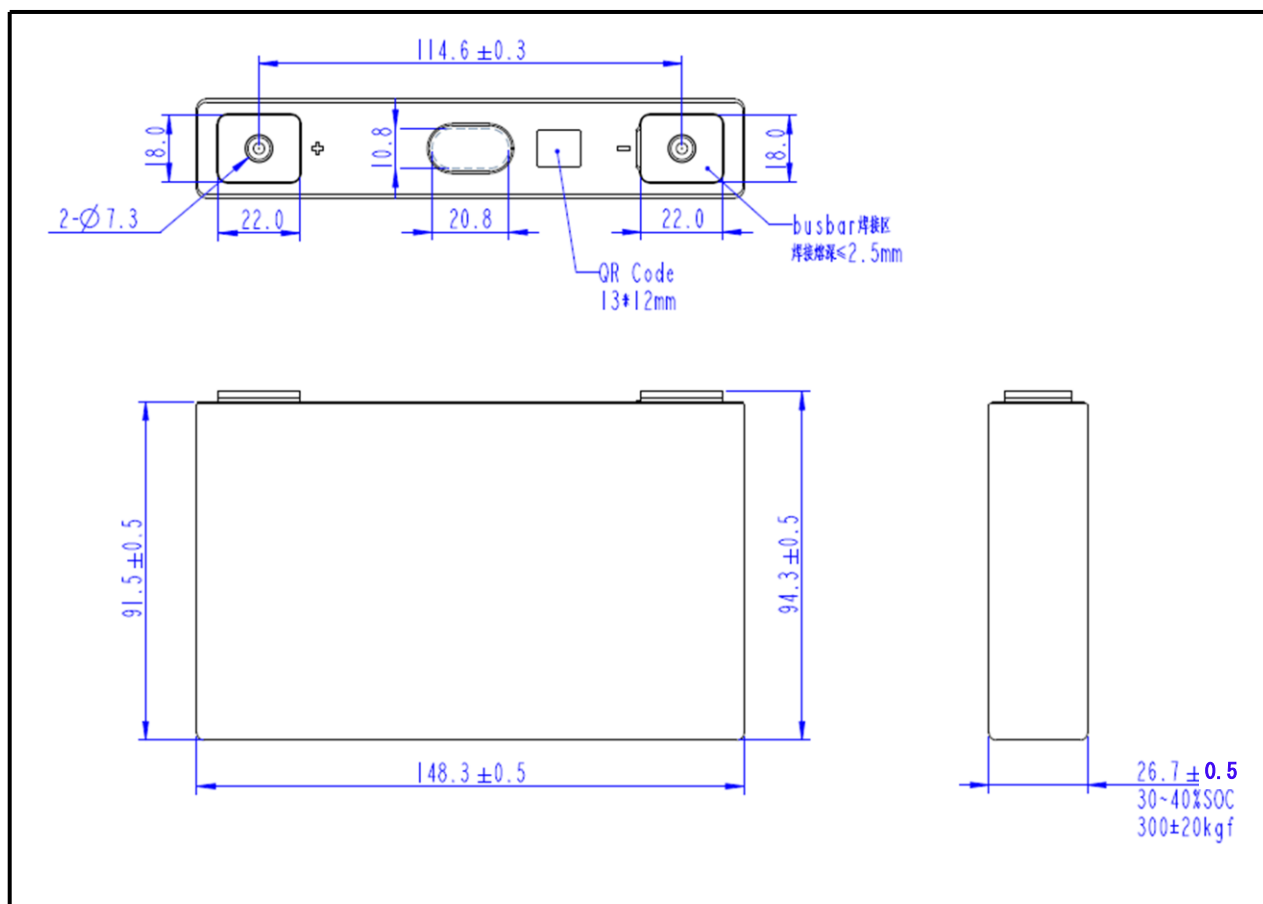
6 Transport

Batteries should be packed in boxes during transportation at a state of charge (SOC) of 30% to 50%. During transit, avoid severe vibrations, impacts, or compression, and protect them from sunlight and rain exposure.

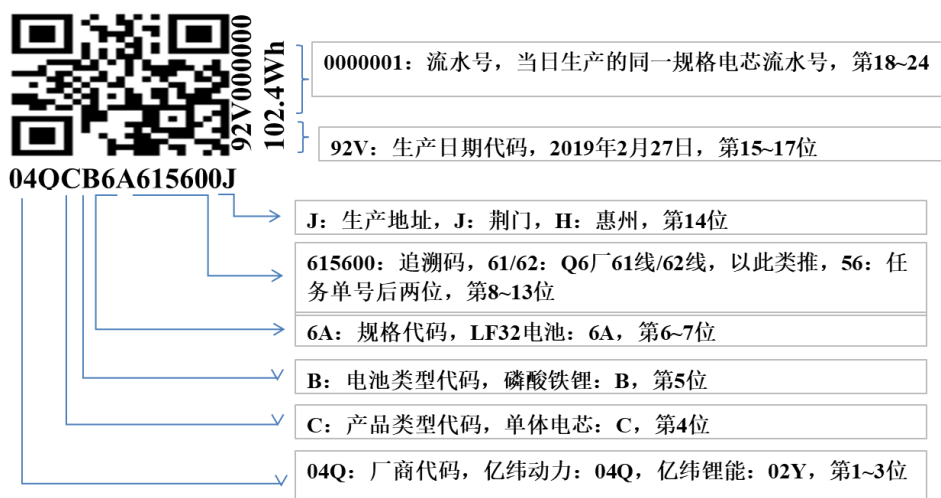
7 Keep in Storage

Batteries should be stored (for over 1 month) in a clean, dry, and well-ventilated indoor environment with ambient temperature ranging from 0°C to 35°C. Perform charging and discharging cycles every 6 months, maintaining the battery at a charged state (30%–50% SOC).

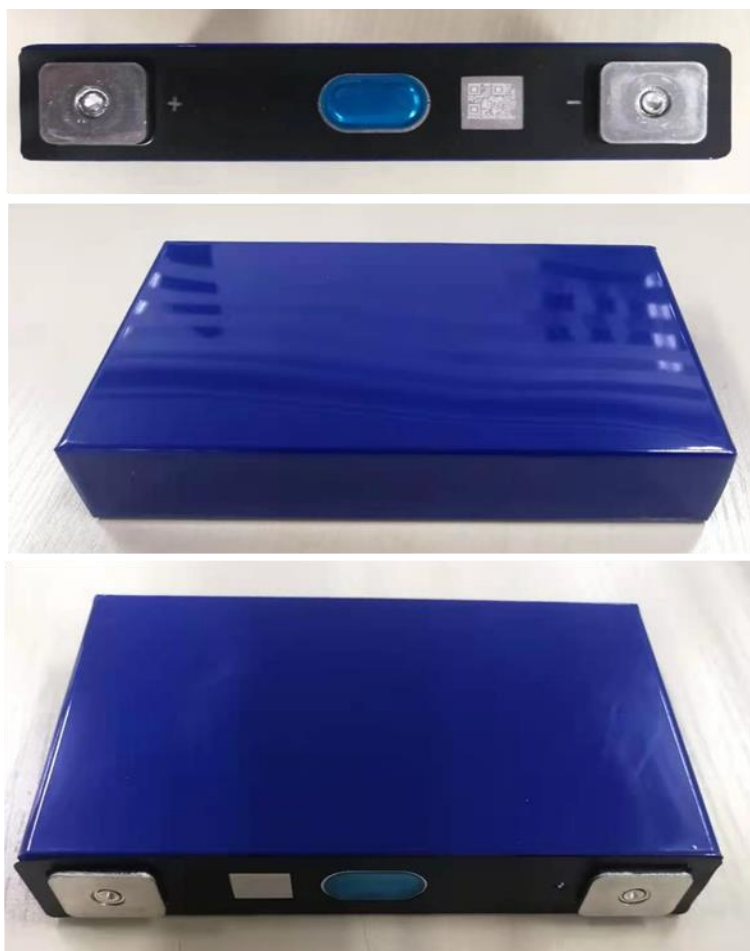
Appendix I: Two-Dimensional Diagram of Battery



Appendix II: Battery Coding Rules

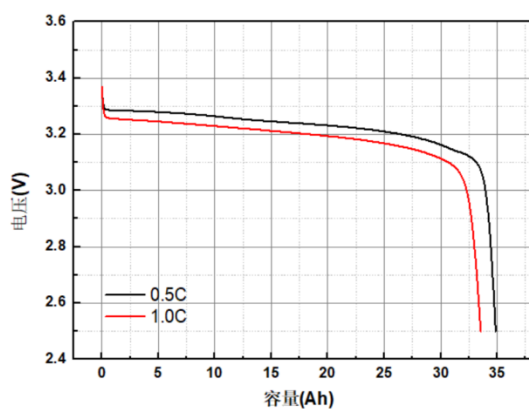


Appendix III: Battery Appearance Photographs

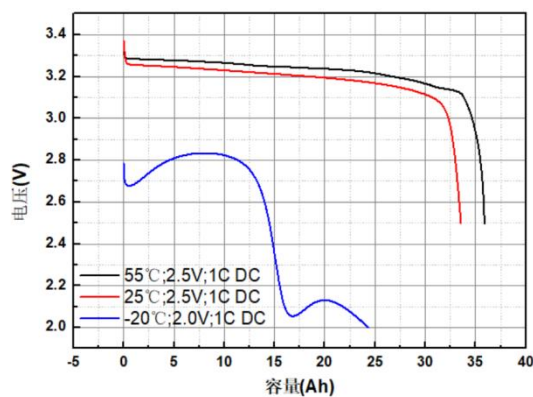


Appendix IV: Electrical Performance Curve Diagram

1、25℃ rate discharge curve



2. Discharge curves at different temperatures



3、Cycle curve (1.0C charge-discharge 3.65V-2.5V)

