

Model	LF162	Specification code	RD-EVE LF162-S14-LF	Edition	B
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Product Delivery Specification

Square Aluminum-Coated Lithium-Ion Battery

Model: LF162

Authorized strength	Product Design Review	Quality audit	Marketing audit	Ratify
Wu Jian	Cheng Cheng	Li Jiaqi	Wang Yu	Yuan Dingding

Customer Inbox
Corporate name :
Ratify :
Date :

May 2021

Hubei Yiwai Power Co., Ltd.



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Customer requirements

Customers are required to submit their requirement specifications and communicate with EVE Power in advance. If customers have specific applications or operational conditions differing from those described in this document, EVE Power may customize product design and production according to their particular requirements.

Order number	Special requirements	Standard
1		
2		
3		
4		
5		

customer code : _____ sign : _____ date : _____



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Change Resume

Edition	Date	Change content	Confirm
A	2021/2/2	New release version	Wu Jian
B	2021/5/14	① Adjust the nominal capacity and weight standards; ② Modify the thermal conductivity of the battery cells;	Wu Jian

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Terminology Definition

Product:The term "product" in this specification refers to rechargeable square aluminum shell lithium-ion batteries produced by Hubei Eve Energy Co., LTD.

Customer:refers to the buyer in the Product Sales Contract of Hubei Eve Power Co., LTD.

Ambient temperature:The ambient temperature of the battery.

Battery temperature:The temperature at the battery temperature measurement point, measured by a temperature sensor connected to the battery.

Rate:The ratio of charge/discharge current to the rated capacity of the battery, denoted by the letter C. For example, if the battery capacity is 162Ah and the charge/discharge current is 54A, the charge/discharge rate is 1/3C.

State of Charge:The ratio of the battery capacity state (measured in ampere-hours or watt-hours) to the rated capacity under no-load conditions, abbreviated as SOC. For example, if a capacity of 162Ah is considered as 100% SOC, then the SOC is 0% when the capacity is 0Ah.

Cycle: A battery cycle refers to a complete charge-discharge process following specified standards. Each cycle combines short-duration normal charging or regenerative charging with discharging phases, where the charging phase may sometimes involve only normal charging without regenerative charging. Discharge events can be formed through combinations of partial discharges.

Standard charging:The charging mode described in Section 3.5 of this specification.

Standard discharge:The discharge mode described in Section 3.6 of this specification.

Open-circuit voltage:The voltage of the battery measured when no load or circuit is connected, abbreviated as OCV.

DC resistance:The ratio of voltage change to corresponding current change of the battery under working conditions, abbreviated as DCR, with testing methods as described in Section 3.8.3.8 of this specification.

Module:An intermediate product of battery and pack formed by combining lithium-ion batteries in series and parallel and adding a single battery monitoring and management device.

Pulse current:A current or voltage pulse that appears periodically is called pulse current. The pulse current may appear in the same direction or alternate directions between positive and negative.

Compression force:The safe boundary of compression force that the battery can withstand during module assembly.

Measurement unit:See table below

Order number	Unit	Write a Chinese character in simplified form	Unit type
1	Volt (Volt)	V	Voltage unit
2	Ampere	A	Unit of current
3	Ampere-hour (Ampere-Hour)	Ah	Volume unit
4	Watt-hour	Wh	Energy unit
5	Ohm (Ohm)	Ω	Unit of resistance
6	Milliohm	m Ω	Unit of resistance
7	Degrees Celsius	$^{\circ}\text{C}$	Degree-day
8	Millimeter	mm	Linear measure
9	Second	s	Hourly basis
10	Hertz	Hz	Frequency unit

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1. Essential Information

1.1. Scope of Application

This product specification applies to the square aluminum-shell lithium-ion batteries manufactured by Hubei EVE Energy Co., Ltd.

1.2. Product Type

Square aluminum-coated lithium-ion battery

1.3. Product Name

LF162

2. Battery Specifications

2.1. Basic Battery Parameters

Project		Standard	Remarks
Minimum capacity		162Ah	1/3C, 25°C±2°C, 2.50V-3.65V
Least energy		521.6Wh	1/3C, 25°C±2°C, 2.50V-3.65V
Initial internal resistance		≤0.5mΩ	AC, 1kHz, 40%SOC
Nominal voltage		3.22V	1/3C
Battery weight		3005g±25g	
Charging limit voltage (U _{max})		3.65V	
Discharge cutoff voltage (U _{min})		2.50V(>0°C) 2.00V(-30°C≤T≤0°C)	
Fast charging time		40min	25°C±2°C, 10%~80%SOC
Cycling performance	25°C standard cycle	2000 times	Fast charging / 1C, 2.50-3.65V, 300±20kgf clamp cycles, capacity retention rate ≥80%
	45°C standard cycle	1500 times	Fast charging / 1C, 2.50-3.65V, 300±20kgf clamp cycles, capacity retention rate ≥80%
Working temperature	Charging temperature	-20°C~60°C	
	Discharge temperature	-30°C~60°C	
Storage temperature	3 month	0°C~45°C	Ship SOC status
	1 month	-20°C~45°C	
Aluminum-Ba Welding Parameters	Laser welding penetration depth	≤2.5mm	
	The pole axis bears the maximum pressure	900N	The pole shaft bears the maximum vertical force without undergoing deformation.
	Pole shaft bears maximum torque	6N·m	The pole shaft bears the maximum torsional load without loosening.
	Pole shaft withstands maximum temperature	130°C	The pole shaft bears the maximum temperature, and the plastic pad does not deform.

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2.2. size of product

2.2.1. Size and Weight Specifications

Order number	Project		Standard	Testing Methodology Chapter
1	Size	Height 1 (H) (including pole)	84.6mm±0.5mm	3.8.1
		Height 2 (h)	81.7mm±0.5mm	
		Width (L1)	280.8mm±0.5mm	
		Width (L2) (with blue film)	281.3mm±0.5mm	
		Thickness (T) (including blue film)	61.0 mm ± 0.3 mm (thickness at 40% SOC and 300 kgf pressure)	
2	Weight	Weight (including blue film and top patch)	3005g±25g	3.8.2

2.2.2. Electrical performance indicators

Order number	Project		Standard	Testing Methodology Chapter
1	Capacity	1/3C capacity	≥162.0Ah	3.8.3.1
		1C capacity	≥160.0Ah	3.8.3.2
2	Energy	1/3C energy	≥521.6Wh	3.8.3.1
		1C energy	≥512.0Wh	3.8.3.2
3	Discharge performance	-20°C capacity retention rate	≥70%	3.8.3.3
		0°C capacity retention rate	≥85%	3.8.3.4
		25°C capacity retention rate	100%	/
		55°C capacity retention rate	≥95%	3.8.3.5
4	DCR	25°C, 50%SOC, 1C, 10sec	≤1.0mΩ	3.8.3.6
5	Recurrence	25°C recurrence	2000 cycles, capacity retention rate ≥80%	3.8.3.7
		45°C recurrence	1500 cycles, capacity retention rate ≥80%	3.8.3.8
6	Charge retention and capacity recovery	25°C, 28 days	Volume retention rate ≥96%	3.8.3.9
			Capacity recovery rate ≥98%	
		45°C, 28 days	Volume retention rate ≥93%	3.8.3.11
			Capacity recovery rate ≥97%	