

# Specification Approval Sheet

## 产品规格确认书

Product Name 产品名称	Motive li-ion battery pack
Model SPEC 型号规格	WB4814ZDDR1/48V/14Ah
Company Name 客户名称	
Document Number 文件编号	TEC-SPEC-1808-021
Sample Number 样品单编号	
Docunment Revision 文件版本	A0

Approved By 批准	Checkup 审核	Make 制定

Customer Confirmation 客户确认	Signature 签名	Date 日期
	Company Name: 公司名称:	
	Company Stamp: 公司印章:	

\* The above parameters are theoretical data, intended for reference only. Please contact our sales staff for more details.

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## 1. Scope:

### 适用范围

This document describes the Product Specification of Chargeable e-bike Motive li-ion battery pack produced by ZHANGZHOU AUCOPO ENERGY TECHNOLOGY CO.,LTD

本产品规格书是漳州万宝能源科技有限公司根据客户要求的性能指标参数而设计制定、加工生产，该产品适用于可充电电动自行车（以下简称电动车）用锂离子动力电池组。

## 2. Battery module configuration

### 产品规格

Cell Type 电芯类型	li-ion battery pack 锂离子动力电池
Cell Modle 电芯型号	Samsung 18650/3500mAh-35E/35ET SANYO 18650/3500mAh
Cell capacity 电芯容量	3400mAh
Cell's assemble: 组装方式	4P13S, voltage 48V. 4 并 13 串, 电压 48V

## 3. Basic performance of battery pack:

### 电池组的基本性能

Product SPEC: 产品规格:		WB4814ZDDR1/48V/14Ah	
Item 项目	Parameter 参数	Remark 备注	
Common Performance 常规特性	Nominal capacity 额定容量	13.6Ah	Constant current Charging at 2A to 55.1V. Constant Voltage Charging at 55.1V to charging current of 0.03C, stopping charging, discharge at 0.3C to 37.7V at 25°C±2°C. 在 25°C±2°C 条件下, 电池以 2A 恒流充电, 至电池电压达 55.1V 时转恒压充电, 至充电电流降至 0.03C 时停止充电, 然后用 0.3C 电流放电至 37.7V 的容量。
	Min Capacity 最小容量	13.3Ah	
	Nominal voltage 标称电压	48V	
Charging characteristics 充电特性	Charge mode 充电方法	CC/CV	Please use the specified charger. When the red lights, it means to charge. When the green lights, it means charging fully. 用配套专用充电器充电, 红灯亮表示充电, 绿灯亮表示充满电。

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	Charge Current 充电电流	Cell surface Temperature (电芯表面温度)	Charge Current (充电电流)
		<0°C	禁止充电 Charge shall be prohibited
		0°C~10°C	0.1C Max (CV: 53.3V Max)
		10°C~43°C	2A Max
	MAX charging voltage 最大充电电压	55.1V	
	MAX charging current 最大充电电流	2A	Specified charger 专用充电器
	charging time 充电时间	Approx :7.5h 约 7.5h	
	Overcharge protection voltage 过充保护电压	4.20~4.30V	any one cell(Ta=25°C) 任一节电池(25°C时)
Temperature of charging place 充电环境温度	+10°C~+35°C	Best charge temperature 最佳充电温度	
Discharging characteristics 放电特性	Rated discharging current (standard) 额定放电电流	-5°C~+0°C 8A Max	In different environmental temperature, the corresponding discharge current 在不同环境温度下, 对应的放电电流值。
		0°C~20°C 11A Max	
		20°C~50°C 15A Max	
	MAX. discharging current 最大放电电流	15A	
	Overdischarge protection voltage 过放保护电压	2.72~2.88V	any one cell(Ta=25°C) 任一节电池(25°C时)
	Battery pack over-current protection 电池组过流保护	27±1A	Delay: 2S 延时: 2S
Temperature of discharging place 放电环境温度	-5°C~+60°C		
Storing temperature 存储温度	5°C~+35°C	Relative humidity 65±20%RH 相对湿度 65±20%RH	
25°C capacity 25°C 容量	≥13.8Ah; 100%	In different temperature, discharge at 0.3C to cut-off voltage of 37.7V, three different temperature compared with 25°C, calculate percentage. 在规定不同温度下, 用 0.3C 放电至终止电压 37.7V, 三种不同温度下的电池容量同 25°C 电池额定容量相比较, 计算百分比。	
-5°C capacity -5°C 容量	≥9.8Ah; 70%		
55°C capacity 55°C 容量	≥12.6Ah; 90%		

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Initial Impedance 初始内阻	≤190mΩ	Internal resistance measured at AC 1KHz after 50% charge 半充状态下, 测量其 AC 1KHz 下的交流阻抗
battery pack Weight 电池组重量	About 3.4Kg	
Assemblage Dimension 外形尺寸	125mm × 94mm × 361mm (L × W × T)	
Color 产品颜色	Black 黑色	
Test method 测试条件	<p>Test conditions must choose the production date of the new battery within 1 month. This product specification of all tests are in the following conditions:            Temperature: 25°C ± 2°C      humidity: 45~75%RH            测试条件必须选用出厂日期 1 个月内的全新电池组。本产品规格书中的所有测试均在以下环境条件下进行:            温度: 25°C ± 2°C      湿度: 45~75%RH</p>	
Protection function 安全测试	<p>With functions of overcharging, over discharging, over current and short circuit protection.            单体电芯产品符合过充、过放、过流和短路测试要求。</p>	
Pack before shipping 电池组出货状态	<p>Charged with about 70~80% power and the voltage is 50.7V~53.3V being.            电池组在出厂时已充入 70~80% 左右的电量, 电池电压在 50.7V~53.3V。</p>	
Notice 注意事项	<ul style="list-style-type: none"> <li>➤ Do not connect the anode and cathode reversely. 严禁将电池组输入、输出端的正负极短路。</li> <li>➤ Do not privately take apart the battery pack. 严禁私自拆开电池组。</li> <li>➤ Prohibited to place the battery pack in the high temperature environment, such as heating, close to the fire or sun exposure, should be placed in a cool, dry environment. Batteries shall not be used when the ambient temperature reaches 60 °C. 严禁将电池组放置于高温环境下, 如加热、靠近火源或阳光下暴晒, 应放置于阴凉干燥的环境中。电池受环境温度影响达到 60°C 时不得使用。</li> <li>➤ Prohibited the battery pack placed in water, acid, alkaline and salt liquid, the electric car as far as possible to avoid the rain. 严禁将电池组放置于水、酸性、碱性和带盐的液体中, 电动车尽量避免雨淋等。</li> <li>➤ Forbidden washing with high pressure jet in of water, to avoid internal electronic devices and circuit due to wet causing the hidden dangers. 禁止用高压水柱冲洗, 以免电池组内部电子器件及线路因浸湿而造成事故隐患。</li> <li>➤ When the battery doesn't work, please turn off the battery on time, in order to prevent from self-discharging. 电池组不工作时, 需及时关断电源防止产品进行自耗电。</li> <li>➤ The battery pack unused for long periods need to add 2 to 3 hours of electricity every three months. And removed from the electric car to be stored in a cool, dry environment.</li> </ul>	

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	<p>电池组长期不用时，每隔 3 个月需补充电 2~3 个小时。并将其从电动车取下后在阴凉干燥的环境中存放。</p> <ul style="list-style-type: none"> <li>➤ Charge must use original special adapter charger, forbidden to use other types and other brands the charger charge. 充电时必须使用原厂专用适配充电器，禁止使用其它型号及其它品牌的充电器充电。</li> <li>➤ Continuous charging for no more than 10 hours. 连续充电时间不超过 10 小时。</li> <li>➤ Forbidden to use rechargeable mouth for electric discharge and to use discharge mouth charge. 严禁用充电口进行放电，严禁用放电口充电。</li> <li>➤ Prohibited in less than 0°C and higher than +40 °C ambient temperature, battery charge. 严禁在低于 0°C 以下和高于+45°C 以上环境温度中给电池充电。</li> <li>➤ When charge and discharge, should first turn on the switch, and then proceed with the charge and discharge test(or use). 进行充放电时，必须先打开开关，才能进行充放电测试(及使用)。</li> <li>➤ To prolong the battery storage time, please turn off the battery power when the battery is not in use. 电动自行车不使用时请将电池组的开关关闭，降低自耗电；以达到提升电池组存储时间。</li> <li>➤ Special note:If the battery is not used for for a long time, should keep it at half charge state (half power), namely: not fully charged, not fully discharged (or charged until the third power indicator lights). And re-charging after 2-3 months, and use half of the electricity, the battery should be stored in a cool dry place, so that the battery can not be damaged. 特别提醒：若电池长期不使用前，使其处于半充电状态(一半电量)，即：不充满电，也不放完电(或充电至电量指示灯板亮第三盏灯)。并在 2-3 个月之后重新充电，并使用一半电量，电池应在阴凉干燥处储存，这样可以使电池不受损坏。</li> </ul>
<p>Warranty period and Product responsibility 包修期限及产品责任</p>	<p>1、Product warranty period: the user must, in accordance with the product specifications specified under the conditions of the use, since the date to begin to calculate case 24 months. 产品包修期：用户必须按照双方产品规格承认书所规定的条件下使用，自出厂日期开始算起 24 个月。</p> <p>2.Before use, please read carefully the attention of the above items and electric car manufacturers the operation instruction "to ensure that the correct use and installation. 使用前请认真阅读上面的注意事项以及厂家电动车《使用说明书》确保正确使用和安装。</p> <p>3.We will not guarantee against any accidents occurring due to usage against this specification. 万宝能源对违反上述注意事项而产生的任何问题不予负责。</p>

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#### 4. Drawing of product

产品外形图



#### 5. Transport

##### 运输

Battery should be shipment at Less than 35~40% of capacity. It should be avoided that shake, impact or extrusion strongly. Prevent to solarization and drench. It should use autocar, train, plane and so on.

电池应在荷电状态低于 35~40% 充电状态下包装成箱进行运输，在运输过程中应防止剧烈振动、冲击或挤压，防止日晒雨淋，应适用汽车等普通交通工具运输。

#### 6. Declaration

##### 声明

This specification terms is set according to the both actual requirements, regared as the IQC and mutual confession, if needs to change must be agreed upon by both parties agree.

本规格书条款是根据双方的实际要求制定，是作为供货进厂检验依据，若需更改需经双方同意。

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