Bicycle battery 18650 lithium ion ebike battery

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"A battery by definition is a collection of cells. So the cell is a little can of chemicals. And the challenge is taking a very high-energy cell, and a large number of them, and combining them safely into a large battery."

As a general rule, all 18650 batteries are not the same. The 18650 batteries are built differently according to specific uses and voltage. Therefore, there are different types from which you can choose.The 18650 battery cells differ in their sizes, voltage capacity, charge and discharge rate, and other specifications. The reason why they are not built equally is for you to have choices to match your electric bike"s requirements.

On the other hand, unprotected 18650 batteries do not have a protective electronic circuit. It means unprotected 18650 batteries are prone to overcharging, over-discharging, and short circuits. However, unprotected 18650 batteries are cheaper than protected 18650 batteries.Most people say unprotected 18650 battery cells are more suitable for building 18650 battery packs for electric bikes. But, the packs should use BMS and other protective components. Though protected 18650 batteries are safer, they are not suitable for every device.

In buying 18650 batteries, device "suitability" is a must.How Many 18650 Do I Need For 48V?In total, thirteen 18650 battery cells are needed in a series connection for 48V. The nominal voltage of 18650 lithium-ion battery cells is 3.7V. So, to compute the number of cells required, divide 48V by 3.7V.To attain the 48V, you need to use thirteen 18650 battery cells connected in a series. These 18650 battery cells should have the same nominal voltage.

So, you have to attach the first cell"s positive terminal to the next cell"s negative terminal and so on with the next cell. This battery pack is called 13S1P because there are 13 cells in the series connection and one cell in parallel.

If you target a specific aH for your battery pack, you must work on your parallel connection. For example, if you have 18650 battery cells with 3.7V and 2.6aH each and want to create a battery pack for 48V and 20aH, you need thirteen 18650 cells in each series to attain 48V.To compute the number of cells for 20aH, divide 20aH by 2.6aH. With that, you need eight cells in each parallel connection.

To get the total number of 18650 battery cells for 48V and 20ah, multiply the number of cells required in the series to the number of cells needed in parallel. So, 13*8 is 104. Thus, you need one hundred and four 18650 battery cells for a 13S8P battery pack with 48V and 20aH.Let me show you another example:7.0V and 6.0aH battery pack from Samsung 18650-30Q battery cells (Nominal Voltage= 3.6V; Nominal Capacity= 3.0aH)

For 6aH, divide six by 3aH. Hence, you need two Samsung 18650-30Q cells in each parallel connection.To

get the total number of battery cells required for the 7V and 6aH battery pack, multiply the number of cells needed in the series to the number of cells required in parallel. Thus, you will need 4 Samsung 18650-30Q battery cells for your battery pack. The pack is called 2S2P.

Always remember to buy protective components for your battery pack.Are 18650 Batteries Banned?As a general rule, 18650 Batteries are not Banned. However, Consumer Product Safety Commission (CPSC) warns the consumers not to use or buy loose 18650 battery cells. Unfortunately, this warning causes some people to believe that 18650 batteries were banned.18650 and other batteries are dangerous and destructive if not handled and used correctly. That is why battery manufacturers provide a manual on safety precautions for handling batteries.

Loose battery cells may have exposed positive and negative terminals. As a result, a short circuit might occur if these terminals contact metal or conductive objects. Short circuits can cause fire, explosion, and physical injuries.

On January 08, 2021, CPSC released a warning for consumers not to use loose 18650 lithium-ion battery cells.CPSC issued this warning after receiving reports of incidents of fire, explosion, and injuries due to improper usage of 18650 batteries. Check the CPSC newsroom to know more about the warning.

The 18650 battery cells that are unprotected should not be used as a standalone battery. Instead, manufacturers usually use these unprotected 18650 battery cells in building battery packs.However, some retailers and sellers tend to separate every single cell in battery packs and rewrap and sell them as new batteries.There have been loose 18650 battery cells sold on different e-commerce platforms. With that, CPSC coordinated with these platforms (Amazon, eBay, Walmart, etc.) to delete the listings of loose 18650 battery cells.

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