

How to choose a replacement laptop battery

There is no laptop without a battery. **Laptops are entirely mobile devices, but not because of their size or weight. It's the battery that powers their appeal**, and all come with a limited lifespan. The batteries most commonly used in laptops are based on **Li-ion technology** and their **duration is approximately 500 cycles (2-3 years)**. Cells are subject to a natural aging process, which means that their efficiency and capacity diminish over time. Eventually, the life of the battery falls to a disappointingly low level, and in the end it becomes impossible to use the device without connecting to a power supply. The result, of course, is that the laptop ceases to offer the mobility for which it was intended.

The first and most important step towards restoring the original functionality of your laptop is to choose the right battery. What should you look for when choosing a battery for your laptop? Contrary to widespread opinion among users, selecting the appropriate battery is not simply a matter of knowing the brand and model for the laptop. **The most important parameters are the original designation, voltage, and capacity.**



Where can I find battery model

codes, and what do they look like?

1. Battery part number and designation



The battery designation is always located on the battery itself. To identify it, remove the battery from the computer and check the label. Apart from such information as country of production and warning signs, there is a **unique battery code**. Depending on the manufacturer and the computer, the battery code consists of various letter/number configurations. These are the most popular patterns:

LAPTOP BRAND	BATTERY DESIGNATION TYPE	EXAMPLE
Apple	AXXXX	A1185

Acer	ASXXXXX	AS07A31
Asus	AXX	A32-M50
Dell	dependent on the generation	GW240
Fujitsu-Siemens	Battery Pack code	3S4400-S1S3
HP/Compaq	HSTNN-XXXX	HSTNN-UB72
HP/Compaq	9 numbers, the last three of which are preceded by a hyphen	485041-001
Lenovo/IBM	FRU and ATM numbers	42T4504
MSI	BTY-XXX	BTY-L74
Samsung	AA-XXXXXX	AA-PB9NC6B
Sony	VGP-BPSXX	VGP-BPS13
Toshiba	PAXXXX	PA3534-1BRS

2. Battery voltage

Locating the battery code is still not enough to enable you to select the appropriate battery. **The second parameter to which we should pay attention is voltage. Depending on energy requirements, batteries have a voltage of 10.8V (or 11.1V – which is also compatible) and 14.4V (or 14.8V – similarly compatible). Voltage** is closely related to the number of cells in the battery - a battery with a voltage of 10.8V usually contains 6 cells, and a battery of 14.4V has 8 cells. Checking the voltage parameter is one of the most important steps. Although the dominant value for laptop batteries is 10.8V, models with a higher voltage sometimes appear.

The matter is further complicated by the fact that one battery model (for example the popular battery AS07B31) can exist in two different voltage versions. **The batteries are not interchangeable - a battery with a lower voltage won't work in a computer that requires higher.** The voltage can be checked as easily as its designation - it is located **on the label**, often close to the battery model, and its international sign is **V (voltage)**.



3. Battery capacity

The third important parameter is capacity, which is usually marked **mAh** or **Wh** (**milliampere-hours** or **watt-hours**). Strictly speaking, mAh is the proper measurement of the cells' capacity. Moreover, 1Ah means that the device has the capacity to supply a continuous current of 1A for an hour. The Wh value specifies how long the battery can function in terms of single use (if we know the energy requirements in watts, for example, a requirement of 20 watts when the battery parameter is 48 Wh means that it will provide power to the computer for around 2.5 hours). The rule is simple - **the higher the mAh/Wh, the longer the operating time.**



Batteries with a higher capacity

The most common original battery capacity is 4400 mAh (48 Wh), which is usually based on 6 cells (at 10.8V). Such a capacity does not always allow you to obtain a satisfying working time. Batteries with **increased capacity** are designed for more demanding users. Increasing the capacity involves adding another set of cells to the existing ones, and a proportional increase in capacity - for 9 cells the capacity will be 6600 mAh (at 10.8V), for 12 cells the capacity will increase to 8800 mAh (at 10.8V). The use of batteries with a higher capacity means an increase of up to **2 times longer in terms of operating time** (for an 8800 mAh battery).

It should be remembered that the increase in the number of cells in a battery usually comes with a larger battery size. Such batteries usually involve an extension in one of two directions: down (the battery then has a “foot”) or back (the battery will extend beyond the computer case). The first solution has many supporters among portable computer users, as through raising the computer around 2 cm upwards we obtain better air circulation underneath, and therefore a lower working temperature.

