

Sealed-Lead Acid Batteries

Lead–acid batteries, invented in 1859 by French physicist [Gaston Planté](#), are the oldest type of rechargeable battery. Despite having a very low energy-to-weight ratio and a low energy-to-volume ratio, their ability to supply high surge currents means that the cells maintain a relatively large power-to-weight ratio. These features, along with their low cost, make them attractive for use in motor vehicles to provide the high current required by automobile starter motors. As well as many other various other applications.

In 1859, [Gaston Planté](#)'s lead-acid battery was the first battery that could be recharged by passing a reverse current through it. Planté's first model consisted of two lead sheets separated by rubber strips and rolled into a spiral. His batteries were first used to power the lights in train carriages while stopped at a station. In 1881, [Camille Alphonse Faure](#) invented an improved version that consisted of a lead grid lattice into which a lead oxide paste was pressed, forming a plate. This design was easier to mass-produce.

The lead-acid battery is still used today in automobiles and other applications in which greater weight is acceptable or in applications that don't require the battery to be moved or transported. In the 1970s the valve-regulated lead acid battery (often called "sealed") was developed; it used a gel electrolyte instead of a liquid, allowing the battery to be used in different positions (except upside down) without leakage.

Sealed Lead acid batteries are popular for most stationary applications, or applications requiring a high capacity:

- There are many available capacities in SLA's. From the smaller applications such as a flashlight, all the way up to emergency lighting stations.
- They have a good discharge and charge rate when properly used.
- Have many different applications including the above mentioned flashlights and emergency lighting to scooter and other various motorized units. They can be used in alarm panels, fish finders, tailgate operations; UPS back up power systems, sump pump application automatic gates, and many other uses. The possibilities are endless.³
- SLA's are a good choice for many applications because they do have the ability to be placed into different positions. Instead of being up right, they can be turned on their sides to accommodate the device they are being placed into.
- They can last several years if properly used, and maintained.
- Most commonly manufactured for vehicles. They come in all shapes and sizes.

Sealed-lead acid batteries also have some flaws.

- They will eventually turn to water, if not properly taken care of. There for rendering them useless even if you were to fully charge it up. The longer the battery sits without a charge, the faster it turns to water too. In fact the most common reason a vehicle that has been sitting there for a long time without charge is due to the fact that battery no longer contains acid, it only contains water and therefore even with a charge will never come back. It wouldn't even produce enough "cold cranking amps" to even turn the vehicle over. When this happens, your only option is buying a whole new battery.
- Even though most commonly used car batteries are SLA's, they vary based on manufactures. You couldn't purchase a standard battery for example and put it on its side. Even though they are technically stated it possible most car batteries have a vent hole which would prevent this. Manufactures such as Optima, Odyssey, or Northstar actually manufacture their batteries so that they can be used in various applications. No other leading manufacture SLA for automotive comes close to Odyssey batteries. They are 99.9% pure lead (in fact Northstar batteries are also 99.9%). Whereas other batteries manufactures have more impurities then Optima (80 % pure), they **all** rate less for lead pureness.
- Because of their various applications, every manufacture and every application has many factors that come into play. What size of voltage, what kind of capacity and most importantly what kinds of terminal applications are on that battery? From spade connectors to bolt on or screw tops every SLA is different.

For more information regarding discharge rates, capacity rating and other various information regarding Sealed-Lead Acid batteries please go to:

<http://www.powerkingdom.com.cn/>