

How does an ev battery work

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Electric vehicles (EVs) are spiking in popularity as the world moves toward more renewable energy and transportation solutions to fight climate change. The technology behind EVs has improved, and they've become a much larger part of our culture. Companies like Tesla have even made the EV a kind of status symbol. But have you ever wondered how they actually work?

Here we'll briefly go over what makes EVs different from gas-powered vehicles and how they work.

When people refer to electric vehicles, they're usually talking about entirely electric cars powered by a battery. These are sometimes called battery electric vehicles (BEVs). But there are other types of vehicles that could be categorized as EVs, including:

The main types of EVs on the road today are hybrids and battery-powered vehicles.

All EVs not powered by a fuel cell need some kind of battery to store the energy used to power the vehicle down the road. Most commonly, those batteries are made of lithium-ion --- basically industrial-strength versions of the battery in your cell phone.

EV batteries are typically constructed from stacks of cells organized into units and laid out in a large bank along the bottom of the vehicle called a traction battery. The battery assembly is charged with electricity from the grid via a charging station or by plugging the vehicle into a home power socket. Larger vehicles like trucks and SUVs powered by a battery will have larger battery banks.

Once fully charged, the vehicle has a set range before needing to be charged again. Electric cars are built with other features to extend battery life, like turning the engine off when the car isn't in motion and using the kinetic energy from when the car brakes to charge the battery.

Fuel cell vehicles operate a bit differently. Instead of a battery, they use a tank of stored hydrogen gas, mixing that hydrogen with the oxygen in the air to create an electricity-forming chemical reaction. Once the gas is depleted, the tank needs to be refilled, which can take less time than recharging an EV's battery.

Advances in EV battery technology are constantly being made, meaning the range of EVs will probably continue to increase as we see new iterations of their design. GM announced a partnership with LG at CES 2021 that will produce smaller EV batteries that are more energy-dense.

Internal combustion engines powered by gas use compressed, ignited fuel to move pistons connected to a

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crankshaft, which turns the vehicle's wheels. An all-electric vehicle uses the same principle of rotation to push a vehicle forward, just powered differently.

Instead of pistons, an EV uses electromagnets to get the crankshaft moving. The electric motor in an EV has a system of magnets, some of which are stationary and some of which rotate. The magnets are made to rotate by continuously switching the polarity of the magnets that need to spin.

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