

## Why Are Batteries So Important in an EV?

EVs are defined by their batteries. The energy required to propel the vehicle is stored and derived from the battery. This affects vehicle range, power output and more.

## What is the Typical Chemistry of an EV Battery?

While early EVs used metal-hydride batteries, modern EVs use lithium based rechargeable batteries.

## How Big is an EV Battery?

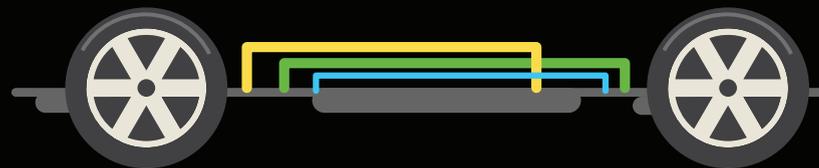
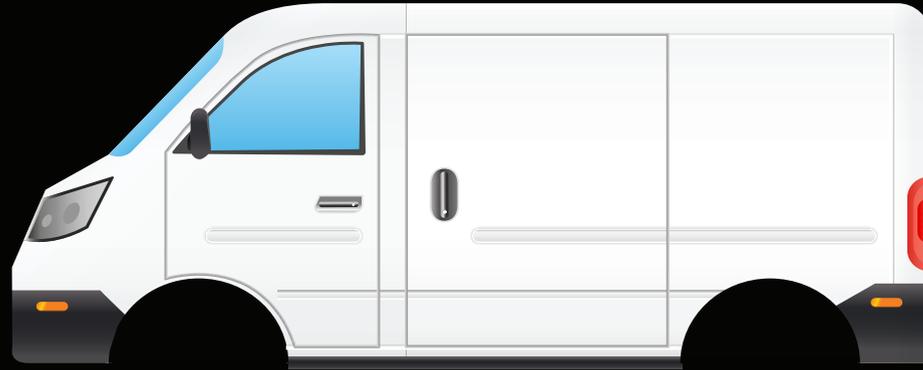
Most EV batteries are large format batteries that span the entire space between the front and rear wheels, and they have an energy storage capacity from 60kWh to 120kWh.

## What is Inside an EV Battery?

The fundamental building block is called a cell. Cells are similar to household batteries, except they are larger and lithium based. Cells are interconnected to create modules, and modules are connected to build the battery. Slave BMS (Battery Management Systems) monitor the modules and cells, and they are hooked up to a master BMS that interacts with vehicle controllers. Liquid cooling systems are also typically integrated to maintain safe operating temperatures, as well as connectors, fuses and contactors for safe operation.

# EV Batteries 101

## Learn the Basics of EV Batteries



## How Long Do EV Batteries Last?

Batteries are generally designed to last well over 200,000 miles. Most OEMs also provide warranties to cover battery issues, some of which are up to eight years long.

## Do EV Batteries Require Maintenance?

EV batteries are maintenance free. Maintenance should not be attempted due to their high voltage nature. The BMS (Battery Management System) maintains the battery and generates fault codes if it requires attention.

## Should I Fully Charge My EV Battery?

Most OEMs recommend leaving the vehicle connected to a charger when it is not in use for prolonged periods of time (i.e. multiple weeks). Charging a battery fully, as indicated by the fuel gauge, will not cause battery issues. An EV battery has internal electronics that will maintain the battery at optimal states of charge.

## Is an EV Battery the Same as an ICE Battery?

ICE vehicles use 12V batteries that support basic functions and provide high amperage to start the engine via the spark plugs. EVs have high voltage batteries that range from 400-600V or more. They do not provide energy for starting the engine - in fact, a BEV (Battery Electric Vehicle) has no engine at all. Instead, the battery stores energy that is used for propulsion (i.e. moving the vehicle) and supporting cabin functions (e.g. air conditioning).