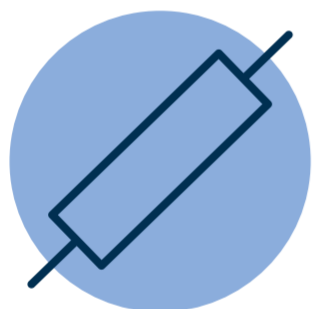


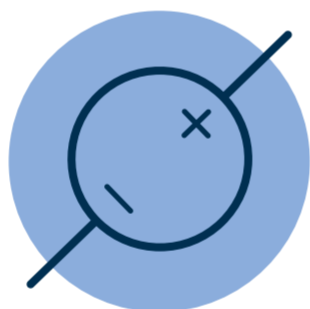
In 2021, battery electric vehicles made up 11.6 per cent of new car sales, more than the previous five years combined. As the number of EVs increases, so does the number of electrical components that need manufacturing. This infographic looks at some of the electrical components that are key to an EV's safety, functionality and efficiency.



RESISTORS

Conventional resistors damp over-voltages or dissipate excess energy created from either braking or starting up – usually converting this electrical energy into heat.

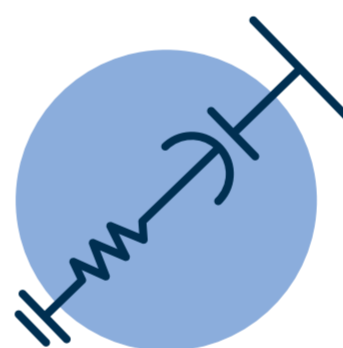
Most EVs use regenerative braking to recuperate energy lost through braking, using a braking resistor to return this energy to the battery to increase the vehicle's driving range. It also reduces servicing costs because of wear on a friction braking system.



VARIABLE DC POWER SUPPLIES

In the development stages of EVs, variable DC power supplies are used to test whether EV batteries are charging safely.

They can also be programmed for all expected EV voltages or currents, making them a stable and adjustable power source for process engineering systems. They can also be interfaced with temperature monitoring equipment to ensure an optimal EV battery lifetime.



HARMONIC FILTERS

Harmonic distortion is a big challenge facing EVs. Changes in frequencies within the electrical distribution system can cause problems for charging EVs and the electrical grid.

Harmonic filters can protect capacitors from failing as a result of repeated exposure to harmonic distortion. Having filters with a low induction tolerance and linear behaviour can also help limit damage or power outages.



EMC FILTERS

EVs are susceptible to electromagnetic interference (EMI) because of the amount of electronics integrated into a small space, which work at high power with differing frequency levels. If electromagnetic compatibility is not maintained, electronic systems can malfunction.

EMC filters are used to ensure individual systems do not cause mutual interference.