

# **1 Overview**

The motor in an electric vehicle is a major component. The type of motor can have large design implications, from power supplies to drive chain.

## **1.1 AC motor**

An AC motor is driven by an AC current. The motor's rotation speed is set by the supply frequency and the number of poles. The AC motor doesn't need a split ring commutator like a DC supply, but is less flexible.

## **1.2 DC motor**

DC motors are a class of motor driven by a DC supply. The DC supply then needs to be driven to the rotors in an oscillatory fashion. These are commonly used for electric vehicles as they have the useful property of increasing torque when under load.

## **1.3 Brushed vs Brushless**

Brushless motors require a drive control circuit to turn the supply DC into a set of oscillating drive lines. Brushed motors have a much more simple drive system, the supply is DC, and the supply is commutated mechanically. The brushes incur mechanical loss.