



## Types and properties

INFOGRAPHIC

# Electric Vehicle Drives

### CHARACTERISTICS

#### MILD HYBRID ELECTRIC VEHICLE [MHEV]



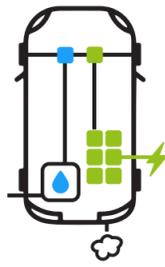
- purely electric range: 0 km
- combustion engine with small 48 V battery  
→ battery only serves to support the combustion engine
- lower fuel consumption and more performance in certain driving situations
- no purely electric drive possible
- battery charging: recuperation

#### HYBRID ELECTRIC VEHICLE [HEV]



- pure electric range: approx. 3–50 km
- medium sized battery
- drive purely electric or fossil possible
- battery charging: recuperation

#### PLUG-IN HYBRID VEHICLE [PHEV]



- purely electric range: approx. 50–130 km
- relatively large battery
- drive purely electric or fossil possible
- battery charging: external charging and recuperation

#### BATTERY ELECTRIC VEHICLE [BEV] + RANGE EXTENDER [REX]



- purely electric range: approx. 85–180 km
- largest battery among hybrids  
→ combustion engine can recharge empty battery if required battery and increase the range (depending on fuel tank size) by up to approx. 100–300 km
- drive purely electric
- battery charging: external charging & recuperation

#### BATTERY ELECTRIC VEHICLE [BEV]



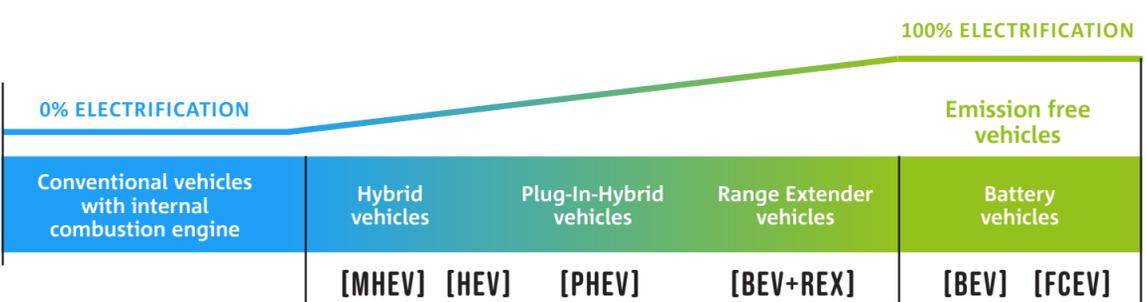
- electric range: approx. 300–550 km
- largest battery among e-vehicles
- drive purely electric
- battery charging: external charging and recuperation

#### FUEL CELL ELECTRIC VEHICLE [FCEV]



- electric range: up to approx. 750 km
- there is only a small battery, as an intermediate buffer, which covers load peaks, e.g. during acceleration
- drive purely electric
- fuel is hydrogen and is converted by the fuel cell into electrical energy by means of electrolysis

Battery  
 Diesel/Gasoline tank  
 Hydrogen tank



### THOMAS PRODUCTS

#### OUR POWERFUL PRODUCTS FOR THE ELECTRIFIED POWERTRAIN

Solenoids and valves for transmission applications



Oil control valves



Proportional solenoid for camshaft phaser



Fuel metering pump for parking heaters



Valves for coolant applications



## Did you already know?

### RECUPERATION

latin. „recuperare“ // engl. „to regain“

Recuperation describes the recovery of energy of the drive energy already delivered, which would normally be lost.

→ The electric motor is involved in the braking process and, as a generator, generates electrical energy that is fed back into the battery. This increases the range.