Ev charging kw

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Anyone new to electric cars would be forgiven for a little confusion around the numbers relating to their power, battery capacity, and how long they take to charge, as their respective units of measurement all contain a reference to kilowatts (kW).

The electric car''s power is fairly straightforward and refers to the electric motor''s maximum output. This is measured in kilowatts (or 1000 watts) just like a normal internal combustion engine (ICE). The higher the kW figure, the more oomph you’ll get at the expense of energy consumption.

The total battery capacity of an electric car is measured in kilowatt-hours (kWh or kW-h). This rating tells you how much electricity can be stored in the battery pack. It’s a unit of energy, just like calories, and one kWh is equal to 3600 kilojoules (or 3.6 megajoules). Unlike kW it is not a unit of power.

Lower-powered EVs require a smaller capacity; for example the Nissan Leaf stores 40kWh and the Hyundai Kona Electric 64 kWh. The Porsche Taycan Turbo S meanwhile stores a maximum of 93.4 kWh.

If all these cars had the same electric motor (and thereby the same maximum amount of power drawn from the battery at any given time) the Porsche would have the longest range because of its higher capacity.

However, the Porsche has a 560kW motor that’s designed for high performance and that comes at the cost of range, which is about 256 miles. But the Hyundai Kona Electric has a 300-mile range even though it has a smaller battery capacity, because its motor is less powerful.

The reference to ‘hours’ in the unit is a source of confusion for some but it’s fairly simple. The kilowatt unit is calculated as the amount of energy necessary to produce kilowatt of power sustained for one hour.

A kilowatt is also the unit of measurement and energy used for charging points. With electricity, a watt is simply the voltage (volts) multiplied by the current (amps), which means the higher the kW number the more electricity is being used to charge your car, which means quicker charging.

You can explore and get to know every electric and hybrid car on our site. On every model page you can select the battery power (kW) and battery capacity (kWh) that you want, and find our more detail in the Technical Data Battery & Range section.

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