

Electric bikes

Feeling lazy? Why not let a motor do the legwork for you...



Anyone who's ever ridden a bicycle with a dynamo light should get an idea of how electric bikes work. With a dynamo light the kinetic energy of the spinning tyre turns the dynamo, transferring energy and ultimately powering the light.

Electric bikes work oppositely. A 'dynamo' of sorts, in this case a battery, produces energy that transfers to kinetic energy in the tyres and moves them forwards.

A typical battery in an electric bike will have approximately a quarter of the power of a toaster, 350-500W. The batteries need to be able to store as much power as possible, and for this reason lithium-ion batteries (like the ones in your mobile phone and computer) are most commonly used. They can often be taken out of the bike and recharged by being plugged into a standard mains plug socket, and most bikes will give upwards of 80km (50 miles) of battery-assisted riding. The battery powers the motor, which will normally increase the speed by about double what the rider is pedalling, up to a top speed of 32km/h (20mph).

Inside the **EBCO** Eagle electric bike

A look at the key parts of this motor-driven bicycle

Battery

Giving a range of 16-64km (10-40 miles) and a top speed of 20mph, the battery is activated manually and supplies power to the motor.

Throttle

A throttle on the handlebar activates the battery, which in turn drives the motor that will assist in turning the wheels of the bike.



Motor

The motor works oppositely to one you'd find in, say, an electric toothbrush. Instead of the bristles (hub) being turned, the toothbrush (wheel) is moved by the stationary bristles.

Spokes

The spokes of an electric bike are much sturdier than those of a regular bike, as they have to withstand the large turning force (torque) the motor creates.

Controller

A controller in the throttle system adjusts the power distribution to ensure a smooth ride. Without it you'd go from a standstill to top speed with nothing in else between.