



# Getting the extra 'oomph' on your bike

In Holland, electric bikes have 6% of the cycling market. Are they set to win the UK market? Geraldine Faulkner reports on the launch of a new product.

**F**RED UP with being a lardie? Keen to do your bit for the environment by getting your bike out of the shed and using it to commute to work, but worried you're (literally) going to let yourself and your bike tires down?

Fret no more. Unless you are a hard-core macho man or woman who insists on pedal power only, power-assisted bicycles or electric bikes are the way forward. And before the petrol heads among you start to scoff, no, we're not talking about those annoying high-pitched mopeds or scooters. An electric bike is simply a bicycle with a small motor to give the rider an extra 'hand'.

Okay, so they have been associated with the elderly in the past, but there are a number of reasons why electric bikes are currently enjoying a surge of popularity in the UK and in European countries like Holland.

For a start, you don't need a driving licence, insurance, MOT costs or road tax to use one, and best of all, when riding a power-assisted bike, you don't need to break out into a sweat and turn up at the office all hot and bothered.

Essentially, electric bikes give you the option to have that 'oomph' to get up a slope, hill or extra mile when your leg muscles start to burn.

Nor are power-assisted bikes new to the market. They've been around in Britain for around eight years.

However, with the dramatic hike in fuel costs, electric bike manufacturers are obviously keen to pitch their products as eco-friendly, particularly when they believe they've cracked the biggest problem of power-assisted bikes, namely, the dead weight of the lead acid batteries that powered them when they were first launched on to the market.

A British electric bike company called Powacycle has introduced the first in its range of stylish power-assisted bikes called Infineum that claim to have a unique system of stackable lithium polymer (LPX) batteries cunningly hidden into the bike's rear rack.

"Electric bikes are now looking less like lumpy scooters and more like attractive options," comments Wazz Mughal, managing director of Harlow-based Powacycle.

So what is so special about LPX batteries?

"The cells can be arranged to form shapes; they have excellent energy to weight ratio; they are lightweight; they do not explode and if mistreated (e.g. shaken around or sustain impact damage) they will

merely expand," explains Mughal.

Each LPX battery pack enables the bike to travel from 25 to 33 miles, albeit with gentle pedalling on a flat surface, and when a second battery pack is added, this extends the bike's range to 60 miles.

Batteries can be stacked three to four times and a full battery recharge takes five hours while the rechargeable battery is estimated to have 1,000 cycles.

Aesthetically, the best thing about the battery is that it doesn't stand out.

To look at Infineum, you would not think it was a power-assisted model as it doesn't have the extra length of a conventional electric bike. In fact, a casual observer could be forgiven for thinking it is a manual bike with a stylish rear rack.

So what about the motor? How much power does it pack and is it noisy?

Sited in the front wheel, it comprises a friction drive with no teeth, i.e. it is just a series of bearings and the most you can hear from the 250 watt motor is a low hum which in urban traffic is barely noticeable.

"It is lightweight with greater than 80% motor efficiency," adds Mughal. Two other pluses are that it that requires no servicing and weighs only 2kg.

Thanks to the lightweight LPX batteries and the bike's aluminium frame, the combined weight of bike and battery is a mere 20kg.

## What is Infineum like to ride?

The bike offers a choice of three modes; a twist grip throttle which provides power without any pedalling; 'pedal assist' or 'pedelec' which enables the rider to cruise while pedalling or normal cycling without any power.

If you opt for the second option, once you've flicked on the red switch on the handlebar to turn on the power assisted system and you start to pedal, you are aware of a rush of acceleration.

One person described it as 'an invisible hand pushing you from behind'. This, along with the 24-gear mechanism, makes cycling on level roads appear quite effortless.

When the bike achieves its maximum speed of 15mph, the power assistance cuts out and the rider is under his or her own steam.

In terms of Infineum's development, it is still early days and the bike is not yet suited to every shape and size. If you are small with short legs, you will struggle to climb over its

102cm high handlebar and it will be a definite effort to reach the 90cm high saddle.

Having said that, Powacycle already has plans to produce a ladies model along with a range of folding bikes that will be ideal for commuters.

## Are you interested?

Well, before you compare the running costs of Infineum to that of a small car (see below) the price might make you take a sharp intake of breath.

Infineum retails at £995 + VAT and for that you get one battery, the computer as standard (which tells you the speed you're travelling at), a battery charger and a rear rack, while an extra battery pack will set you back by £249 + VAT.

Still, there is no doubt that a power-assisted bike is always going to be more economical to run than a car.

■ [www.infineumbike.co.uk](http://www.infineumbike.co.uk)

## INFINEUM VERSUS SMALL CAR

### Running costs:

#### Infineum

- Battery capacity: 240 watt hours
- Input energy (charger 75% efficient): 320 Watt hours
- 320 Watt hours: 0.32 units of electricity
- Price/unit: £0.12
- Cost of charge approx 4p
- 30 miles from one charge
- Cost per mile: 0.13p

#### Small car on urban cycle

- Unleaded petrol: £1.18 per litre
- £5.43 per gallon
- Small car in town: 40 mpg
- Cost per mile: 13.6p

## WHAT ARE ELECTRIC BIKES?

Electric bikes are classed as bicycles by UK law provided they fulfil the following criteria:

- Product weight must be less than 40kg
- The motor should not exceed 200W continuous power input
- The maximum power assisted speed is 15mph
- Working pedals are included.