

Our round-up of...

LIGHTWEIGHT ELECTRIC BIKES

Assisted two-wheel freedom for motorhomers



Looking for an electric bike? Weight is an important factor. Lifting the bike onto a rack or into a storage space will usually be needed and keeping payload down is essential, so any kilos you can manage to shed are most welcome.

There's the extra weight of the motor and battery, though the battery can often be removed for lifting and charging, lightening the load by 1-3kg. Compromises to get e-bike weights down include a smaller battery, fewer gears and a lack of extras (lights, mudguards and pannier rack disappear pretty quickly to keep the weight down).

To keep a decent size of battery, a reasonably powerful motor and good gear range, you'll need exotic frame materials, such as the magnesium used by GoCycle. Carbon fibre is great, but cost is prohibitive – Haibike's 2016 xDuro Fullseven Carbon Ultimate is an electric mountain bike claiming to weigh only 17kg but it's priced at £13,000!

For more information on electric

bike technology and buying tips, take a look at OutandAboutLive's guide to electric bikes tinyurl.com/motorhome-ebikes

MORE CONTENDERS

You can also buy a kit to convert your own bike to electric, which was covered in *MMM* (June 2015, p237).

Sophisticated, but pricey offerings are COBOC, a single-speed range from 13.5kg coboc.biz and the remarkable 10-speed Freygeist with a claimed weight of just 12kg and an eye-watering price tag of nearly €4,000, available in Germany via freygeist-bikes.com

THANKS TO...

Our thanks go to Electric Bike Sales for supplying several test models. It offers a range of electric bikes from many leading manufacturers online at electricbikesales.co.uk and in five stores: Bristol, Cambridge, London, Oxford and York.



ARCC E2-POD MOULTON & CINELLI

This hub motor system is powered by a standard Bosch power tool battery using ARCC's clever docking system machined out of solid aluminium at its Cambridge factory. I tried the classic Moulton TSR, with front and rear elastomer suspension (similar the original Mini cars and from the same designer, Alex Moulton). With four widely spaced gears (two automatic hub gears and two chainwheel gears), plus front wheel hub motor geared, this system suits riders with a slightly sporty riding style.

The control unit has USB and micro-USB sockets, handy for device charging on the go. It has a variable power control knob and the on/off button allows you to switch to A+ mode; the inclinometer senses the gradient and kicks in more power accordingly. The battery and control unit are easily removed, leaving you with a lightweight bike that can be ridden without electric power.

There is also a function that is activated by applying both brakes and pressure to the pedals. When the brakes are released and the rider pedals, maximum power is delivered to the motor for three seconds, enabling an effortless getaway when moving away from traffic lights, crossings in heavy traffic and hill starts.

The TSR splits in two by undoing a single Allen key bolt and splitting the gear and brake cables with screw connectors; resulting in two smaller and more easily stowable packages. About to be launched are a smartphone app, giving greater control over motor performance and a new handlebar-mounted wireless control meaning the rider won't have to bend forward to alter the power level.

FEATURES

- **Total weight:** With one battery and controller: 17.5kg (Cinelli is 12.4kg)
- **Battery weight:** 1.25kg
- **Removable controller:** 930g
- **Battery capacity:** 144Wh (capacity easily doubled using the spare battery holder)
- **Gears:** 2 automatic hub gears (high and low gearing options available)
- **Speed/acceleration:** ★★★★★
- **Hill climb:** ★★★★★

Contact: arccinnovations.com
01223 893290



BH EMOTION EASYGO VOLT

The EasyGo Volt from BH Bikes manages to pack down pretty small compared to many other folding electric bikes, mainly due to its short wheelbase.

This aspect makes it fairly lively to handle but, as with most bikes with smaller wheels, you will adapt to riding it and, eventually, you will fail to notice you are on a small wheeler.

The hub motor in the rear wheel gives plenty of assistance and is smoothly controlled by a torque sensor that is housed in the rear dropouts. This is a much more sophisticated system than the cheaper motion sensors, which are all too common in many other 'budget' electric bikes. The motion sensors can lead to a delayed and often disproportionate introduction of motor power, unlike with torque sensors.

The bike also comes with mudguards and a naturally small, but very useful, pannier rack.

My only real criticism of the EasyGo Volt is the small battery size, though economy was great with careful use of the three power settings. I estimated an average rider in average conditions should get a 25-mile range. Extra batteries are also pricey at around £325.

The price quoted below is through a multitude of UK retailers. Just search for 'BH Easygo Volt' on the internet. You can also buy direct from BH for £1,299.90, with free shipping on orders over £150.

Although you need a bungee or tie-wraps to fasten the folded package together, it's still a stand-out package in the world of folding electric bikes, which are normally far heavier and more unwieldy than the Volt.

FEATURES

- **Total weight:** 17.75kg
- **Battery weight:** 1.25kg
- **Battery capacity:** 216Wh
- **Gears:** 6 derailleur gears
- **Speed/acceleration:** ★★★★★
- **Hill climb:** ★★★★★

Contact: bhbikes.com
 0034 945 135202



FREGO RAPTOR

This Raptor was the lightest of the seven bikes on test, as well as being very simple to use and maintain with its single-speed gear. Simply get on, pedal and go (it's a pedelec like the vast majority of e-bikes on the market now).

It's a great 'around town' bike and would suit cycling over flatter terrain and relatively short distances. The small water bottle-like battery removes for easy and quick charging and the bike feels fast and sporty to ride.

It was the weakest hillclimber on test, though, and you may find yourself pushing it a little more up any serious gradients. However, it is ideal if all you want is a bike to grab when parked up on a campsite out of town and use it to bowl along a cyclepath or canal towpath into the city centre, or for a bit of assistance when you're on an easy-going leisure ride.

Be aware that, as with many single speeds, you do need to start pedalling quite hard until you get a bit of speed up; this is the downside of having only one gear!

There is also the fact that this budget bicycle features a motion sensor next to the pedal cranks. This requires you to be pedalling at a low speed before the electric power kicks in. In essence, this means you will not get the immediate response of all the other e-bikes on test here, which all feature torque sensors.

FEATURES

- **Total weight:** 14.4kg
- **Battery weight:** 1.2kg
- **Battery capacity:** 132Wh as tested (263Wh option also available; essentially two batteries)
- **Gears:** Single speed
- **Speed/acceleration:** ★★★★★
- **Hill climb:** ★★★★★

Contact: freegoelectricbikes.com
 08000 778711



KTM VENTURA CROSS 9

At a shade over 21kg and a £1,600 price tag, this has to be both the best value and one of the lightest full-sized, big name crank-drive pedelecs available. There are plenty of high-quality crank-drive electric mountain bikes around at this weight but all are noticeably more expensive and don't offer the extra comfort and road speed of this hybrid design, which is at home on both tarmac and unsealed surfaces.

The battery is a decent size and the motor is similarly powerful and responsive when compared to more expensive competitor systems and stopping is a cinch with the hydraulic disc brakes. Like the Kalkhoff, it's easy to flick between the three power levels to get optimum assistance for the conditions. There are several frame sizes and a sloping top tube frame option (for easier mounting) and a kickstand.

Compared to the Kalkhoff there is a wealth of info on the LCD handlebar display (though that makes it slightly more fiddly to use in practice). This includes a handy predicted range feature (though keep a close eye on it – the predicted range can fall dramatically after just a few steep hills on full power).

My only quibbles were a slightly noisy motor and the fact that the front suspension forks add weight but not a great deal of performance. Still, outstanding value. This bike is available in the UK from shop.flidistribution.co.uk 01484 535544

FEATURES

- **Total weight:** 21.2kg
- **Battery weight:** 2.8kg
- **Battery capacity:** 418Wh
- **Gears:** 9 derailleur gears
- **Speed/acceleration:** ★★★★★
- **Hill climb:** ★★★★★

Contact: ktm-bikes.at
 0043 774 240910



KALKHOFF SAHEL COMPACT

The Sahel, from Kalkhoff, is the heaviest bike on test, but it's also the most powerful and one of the most compact, with handlebars that do a quick, tool-free 90 degree turn for easy storage. It's also the most completely equipped with 'accessories' (or essentials, depending on how often and in what conditions you cycle).

If you are not too concerned about the extra weight, you get a superb pedelec motor system with high-quality dynamo-powered LED lights, hydraulic rim brakes, a very solid rack and mudguards, plus large-volume Schwalbe tyres, which are great for dirt roads as well as Tarmac.

The one-size, step over frame, with an easily adjustable handlebar height, will suit most shapes and sizes of rider.

Along with the KTM on the previous page, this is easily the best hill climber on test, for those who regularly tackle really steep climbs on two wheels.

The big battery option (which is the biggest on test) plus pannier rack and lights mean this is the best equipped bike here for longer rides and rides in all weathers.

Although a lesser-known name than competitor crank motor systems, Bosch and Shimano, Kalkhoff is well established both in Europe and here in the UK via longstanding importer and retailer 50cycles, which is a Kalkhoff expert.

FEATURES

- **Total weight:** 22.73kg (396Wh option as tested)
- **Battery weight:** 2.9kg for 396Wh option
- **Battery capacity:** 396Wh or 612Wh
- **Gears:** 8 hub gears
- **Speed/acceleration:** ★★★★★
- **Hill climb:** ★★★★★

Contact: 📍 kalkhoff-bikes.com
 ☎ 0049 4471 966111 or 📍 50cycles.com
 ☎ 03339 005050

MOMENTUM ELECTRIC UPSTART

Back in 2013, Momentum clinched an MMM Best Buy award and, for 2016, it has completely remodelled its range, adding features and losing weight.

I immediately noticed the smaller, quieter front hub motor and the smooth torque pedal sensor, delivering power as soon as you press on the pedals. There is a bigger battery, LED lights powered by the main battery, a height-adjustable stem, rear pannier rack option and V brakes with the ability to upgrade to hydraulic rim brakes. This gives a smoother, sportier, yet more practical ride (the Model T shares many of the upgrades, too). Impressively, it is nearly 3kg lighter than the outgoing model.

The downsides are the price increase (more than £300) and that, as a hub motor model with only two gears, you won't quite get the hill-climbing ability of the heavier crank motor drives featured. However, over moderately hilly country, it's one of the quickest and most efficient electric bikes; I was bowling along at around 18mph on the flat without using the motor and not many electric bikes can be ridden so easily above the power cut-out limit of 15mph. The two automatic hub gears work well, changing up just as your legs are beginning to spin around too quickly and with none of the delay and loss of speed you can get.

If you want style, comfort, speed and practicality on a lightweight electric bike, this has to be near the top of the list.

FEATURES

- **Total weight:** 18.2kg
- **Battery weight:** 2.6kg
- **Battery capacity:** 375Wh
- **Gears:** 2 automatic hub gears
- **Speed/acceleration:** ★★★★★
- **Hill climb:** ★★★★★

Contact: 📍 momentumelectric.co.uk
 ☎ 03330 117777



GOCYCLE 2.0

The GoCycle is the iPad of the electric bike world. Designed with very few standard bike components, upgraded features of the 2.0 include lighter lithium batteries replacing NiMH, more control settings via a smartphone app and a choice of pedelec or throttle style power application.

The bike 'demonsts' rather than folds, with interchangeable wheels removing at the flick of a set of latches, though you need an Allen key to remove the seatpost.

It's a joy to ride, though it's clearly designed for commuting rather than long-distance touring or blasting up very long, steep hills. It handles well and the tiny motor pushes you along with real verve. The test bike was locked in City Mode, so star ratings may be different for unlocked versions where full purchase price has been paid and all power modes are available. Optional extras include lights, mudguards and a 'mounting dock' to fix all the demounted pieces to.

As with all one-off designs, be aware that spares may not be readily available (for example, the 'non-serviceable' chain drive) and the design has strong cons (like a non-removable battery) as well as very strong pros (superb removable wheel design, beautifully sharp brakes).

With the GoCycle 3.0 just arriving (it went on sale at the start of March) look out for offers on the GoCycle 2.0.

FEATURES

- **Total weight:** 16.6kg
- **Battery weight:** Not known (non-removable)
- **Battery capacity:** 236.5Wh
- **Gears:** 3 hub gears
- **Speed/acceleration:** ★★★★★
- **Hill climb:** ★★★★★

Contact: 📍 gocycle.com
 ☎ 02030 442120