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Electric bike conversion kits: front vs rear hub motors

If you have ever considered an eBike, then you are certainly not alone. Around the world, eBikes have gained in popularity and there seems to be no sign of this abating anytime soon. One of the biggest issues with eBikes can be the price. Purchasing an eBike can certainly be expensive and this presents a barrier for those looking to take advantage of all that eBikes have to offer. That is where eBike conversion kits come in.

With eBike conversion kits, you can take your traditional bicycle and transform it into an eBike with ease, and at a fraction of the cost. While there are some eBike conversion kits that come with mid-drive motors, the main choices that you'll come across are those with a front hub motor (such as the Swytch Kit) and those with rear hub motors.

If you're wondering which of these is the best option for you, read on as we explore the pros and cons of each.

Before we jump into the detail surrounding the choice between front and rear hub motors, we thought that it would be useful to provide an overview of the main pros and cons. This allows you to see, at a glance, what each option has to offer.

Front hub motors

We will take a look at the front-wheel-drive option first. Here's a summary of the main pros and cons:

Pros

- A front hub motor is lightweight and easy to fit onto almost all bikes
- A new front hub motor, like the Swytch Kit, works well with your gears
- They are easy to repair and replace
- You can even use a front hub motor with an adult tricycle
- With a front hub motor, the need for drive chain maintenance is minimal

Cons

- If you opt for older conversion kits, rather than the Swytch Kit, these can be heavy and affect the overall weighting of the bike
- There may be less torque at low speed with front-wheel drive. This means that they are not effective for towing or on dirt roads
- There will be more wear on the front brakes
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Rear hub motors

If you're interested in the rear-wheel-drive option, here's what you'll need to be aware of:

Pros

- A rear hub motor uses well-established technology
- A rear hub motor will generally perform better on a dirt road
- There is less wear drive chain wise

Cons

- A rear hub motor generally leads to more spoke breakages

- It's more difficult to change a tyre when compared to a front hub motor
- There is more wear on the rear brakes
- Much more difficult to fit due to gearing, meaning the conversion may need to be done by a professional
- Worse weight distribution which may lead to other issues
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Why weight matters

One of the key considerations when looking at front hub motors vs rear is the weight. The goal with an eBike is to spread the weight from front to back, as evenly as possible. Having all of the weight sitting in one area will cause issues.

The Swytch front hub motor helps to spread the weight and gives improved weight distribution compared to a rear motor.

If the weight is centred at the back of an eBike, there is always the risk of performing an unintentional wheelie while accelerating!

This is more like to be the case if the motor is high torque and you have wheels with a small diameter, but a front hub motor removes this risk.

The impact on traction

While it's the case that a front hub motor deals with weight distribution, this doesn't mean that the front-wheel-drive option is problem-free. With front-wheel drive, there is the possibility of issues with traction control.

As most of the weight of your eBike (caused by the rider) is sat at the back, a lightweight front hub motor means that there is not a great deal of traction. What you will find is that a front hub motor with a voltage of 36V, like the Swytch Kit, makes this less of an issue.

With a rear hub motor, the motor is adding to the weight of the rider at the back of the eBike. This means that the traction is increased and you won't find your wheel spinning freely on a dirt road.

How hub motor placement affects tyres

Something else to consider when choosing between a front and rear hub motor is the impact of flat tyres. When it comes to fixing a flat tyre, this is more difficult with a hub motor when compared to a standard wheel.

The last thing that anyone wants is a flat tyre, but worse than that is a flat where you have your motor. The probability is that your rear tyre is more likely to be flat.

You will find when riding, that your front tyre will kick up debris on the road. This sees nails being lifted up or glass being repositioned, etc.

While this causes little damage to the front tyre, the rear tyre then goes over the debris in its new position, ultimately leading to a flat. If you have a rear hub motor, you are then facing the difficulty of repairing/replacing the tyre.

The ease of installation

When looking at eBike conversion kits, you want to be looking for one that can be installed quickly, and with ease. What you will find is that a front hub motor is much easier to install than any rear hub motor. This is even more true when looking at the Swytch Kit: this eBike conversion kit is designed so that it can be fitted by anyone to any bicycle. While it can be hard to weigh up front vs rear hub motors, the real appeal of the Swytch Kit is that you can purchase it and find yourself enjoying all that an eBike has to offer in literally a matter of minutes.