

A gearbox on a bicycle? Why?

Advantages

1) Reduction in suspended weight

The cassette and rear derailleur have been removed, reducing the total suspended mass, which means that the bike's suspension system will adapt more quickly to the terrain, the rear wheel will stay in contact with the ground longer, and it will provide greater feel and traction.

2) Instant shifting without pedalling

The nature of the mechanism itself makes shifting from one gear to another faster than traditional transmissions and does not require pedalling.

3) Increased durability

The entire gear mechanism is protected, lubricated and sealed from the outside. The casing is robust and, even if it receives blows, all the important parts remain intact. Furthermore, if you do not have a rear derailleur, you cannot break it. In turn, the chain always works perfectly aligned at all speeds, increasing its useful life.

4) Less maintenance

This is another benefit of having a sealed box that is protected from the elements. You just need to keep the chain clean and lubricated and change the internal oil as often as recommended by the manufacturer.

5) Symmetrical dishing of the rear wheel

Using a single rear sprocket allows for the use of single speed hubs. These have spokes at the same angle on each side, resulting in a stronger and/or lighter wheel.

6) Up to 600% gear range

Approximately 30% greater than traditional transmissions, which generally have up to 463% gear range, depending on the model.

7) Quieter bicycle

Because fewer parts are required to tension the chain, there is less relative movement between them and fewer small impacts that generate noise. In addition, the chain does not move from sprocket to sprocket when changing gears, which also reduces noise.

8) Lower and more centred centre of gravity

When talking about the weight of a bicycle, it is important to consider not only the total weight, but also how it is distributed. Having most of the weight centred and at a lower height provides stability to the bicycle, especially at high speeds. It is also noticeable when making sudden changes of direction in tight corners, as well as when jumping and landing.

9) Anti-Squat and Pedal-Kickback the same for all gears

If we use a 'cassette', the chain changes its angle of inclination for each sprocket. This modifies the Anti-Squat and Pedal-Kickback parameters, so the pedalling of the bicycle is different for each gear, which can be uncomfortable in many situations and limits the possibilities of suspension systems. Using a gearbox means that we only have one chainring and one sprocket, so pedalling will be the same for all gears.

10) Greater ground clearance

Thanks to the wide gear range of the gearboxes, it is possible to fit smaller chainrings and sprockets and eliminate the rear derailleur, giving us greater ground clearance to avoid impacts.

Disadvantages.

1) Small dead angle

When starting to pedal, there is a small angle of rotation without load, although it should be noted that this is small and only noticeable when starting to pedal.

2) Greater total weight

The increase in weight compared to a traditional drivetrain is approximately 500 g. This is considerable, but it is important to keep in mind where this extra weight is located and that a full water bottle weighs even more!

3) Does not shift with load on the pedals

To change gears, it is necessary to reduce or remove the load applied to the pedals for a fraction of a second to make the change. We do not believe this is a disadvantage in itself, but it is different from what you are probably used to and you will have to adapt. In any case, for any type of transmission, it is highly recommended to reduce the load on the pedals when changing gears.

4) Repairs

If you need any repairs or replacements, you probably won't be able to get them done at just any bicycle repair shop. Although this may seem like a big problem, keep in mind that the chances of failure are minimal, as there are very few components exposed to external impacts.