Hub vs Mid-drive Motor for bicycles

<https://electrek.co/2018/06/07/electric-bicycle-hub-motors-vs-mid-drive/>

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| --- | --- |
| Hub motor | Mid-drive |
| Pros:   * Low maintenance * Regenerative breaking (not always with geared hub motors) * Can be easily modified * No impact on the chain * Cheap   Cons:   * No gear ratio change (less efficiency) * Heavier? | Pros:   * Lower weight? * Efficiency for any condition (hill vs flat) because speed shift affects motor: only true with cassette * Better pedal assist feature because direct measurement of the torque   Cons:   * Tension on the chain -> need to move to a belt solution * Can shift when bike is stopped |

Hub motor constraints from retrospect:

* Single speed
* O.L.D = 120 mm
* Geared motor (want it to be discrete and lighter)
* Nice to have: regenerative breaking

Hub motor options:

* 2 speed bafang H700
* 2 Speed Xiongda hubmotor

Topics:

* <https://endless-sphere.com/forums/viewtopic.php?t=103288>
* <https://endless-sphere.com/forums/viewtopic.php?f=3&t=58490&hilit=bafang+h700&start=1725>

Message Endless-Sphere:

Hi knutselmaaster,

Nice to meet you. I'm new to Endless Sphere and new to E-bikes. I'm from France but I have been living for 3 years now in the US as I have just started my career as a mechanical engineer in the bay area.

I would like to convert a retrospect single speed bike (with free-wheel) to an electric bike. The constraints that I have are:

[list]

[\*] [b]Type of motor: [/b]Rear Hub geared motor

[\*] [b]Motor connection to the wheel:[/b] direct connection (no free-wheel) to enable generative breaking at some point.

[\*] [b]Rear Hub O.L.D (Over-Lock-nut-Dimension):[/b] 120 mm

[\*] [b]Motor power:[/b] between 250W and 350W, I don't want the motor to be super heavy (<3kg) while still providing good assistance if needed.

[\*] [b]Type of gears:[/b] ideally a two speed gear set integrated in the motor to use a 250W motor while still having enough torque for steep slopes while maintaining high speed (>40 kph) on flat roads.

[/list]

I have looked at multiple threads in endless-sphere and I have seen one about the [url=https://endless-sphere.com/forums/viewtopic.php?t=59369]Xiongda 2-speed motor[/url]. I have also looked at the Bafang h700 but it looks like this system is not a dual speed on the motor side. So, I was looking for this Xiongda motor but I cannot find a place where I can buy it. You mentioned you had some in stock as of January 2022, is this still the case? If not do you know any other good motor that would fit my needs? It looks like you have been in this forum for a while so I was hoping to get some help if possible.

I think you are also from France so happy to have this conversion in French directly.

Thank you in advance.

Spootin