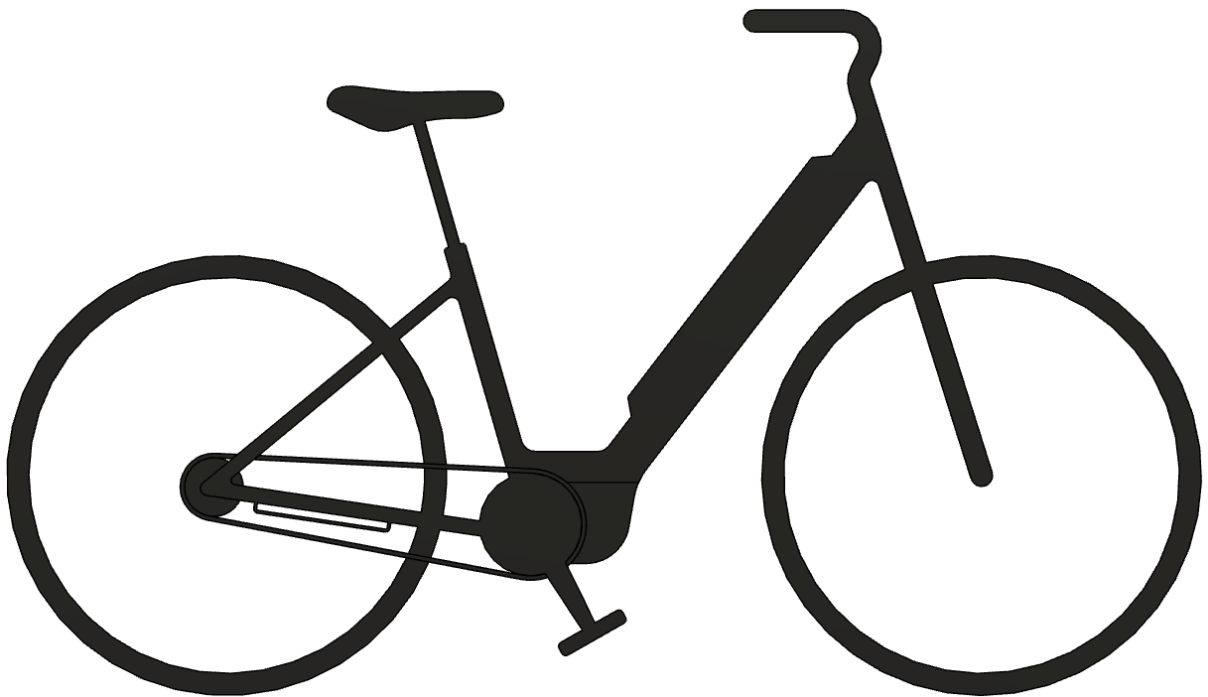


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HOW IT WORKS AND WHY TO USE IT



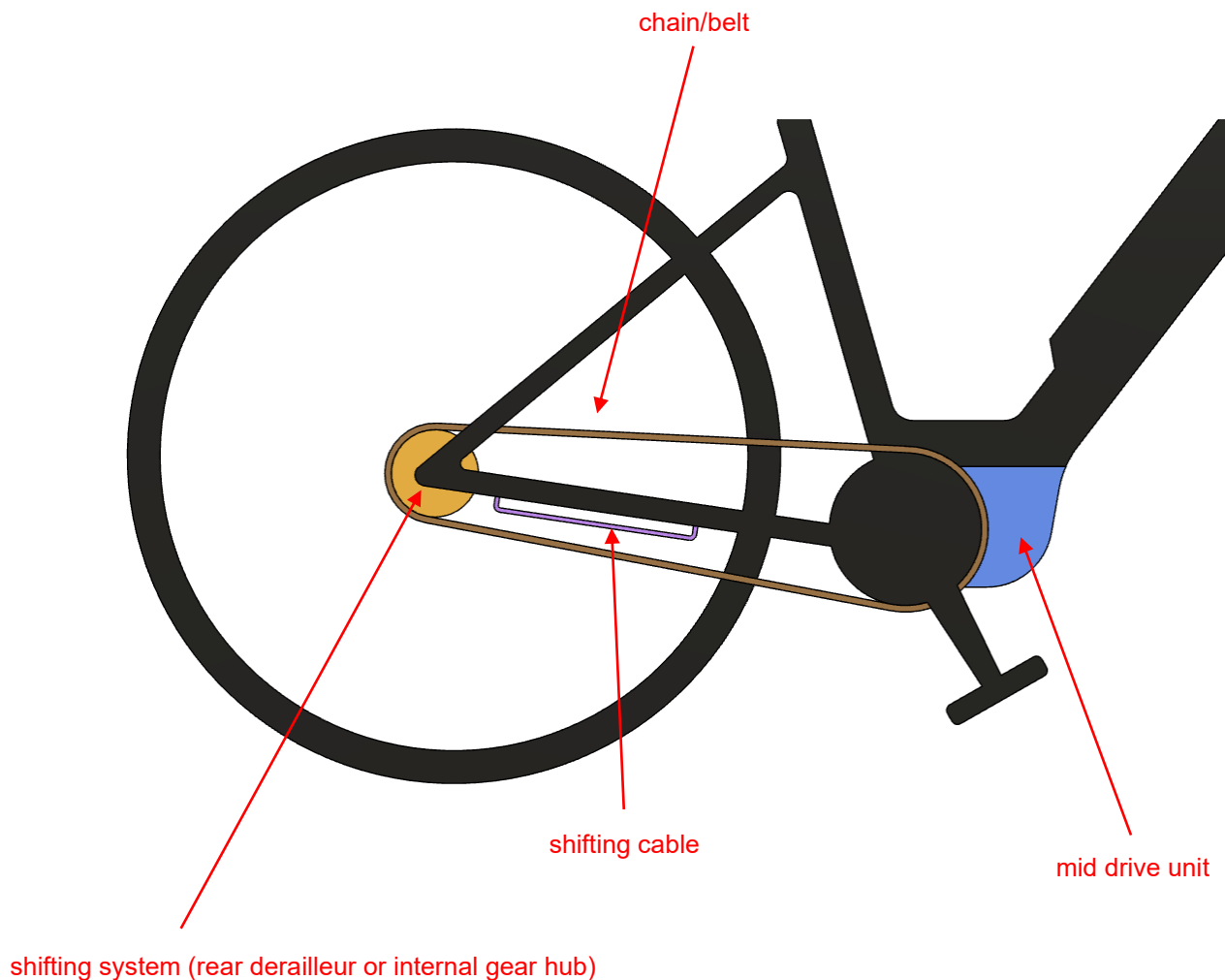
Basic description

Gearsensor.com brand products can be used only for electric bicycles equipped with a mid drive unit.

E-bike motor must be compatible by software and hardware, the list of compatible units can be found at: <https://gearsensor.com/compatible-drive-units>.

There are 5 related components that will be mentioned in this document:

- shifting system (rear derailleur or internal gear hub)
- shifting cable
- chain/belt
- mid drive unit
- gearsensor.com



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Negative effect of the motor torque power

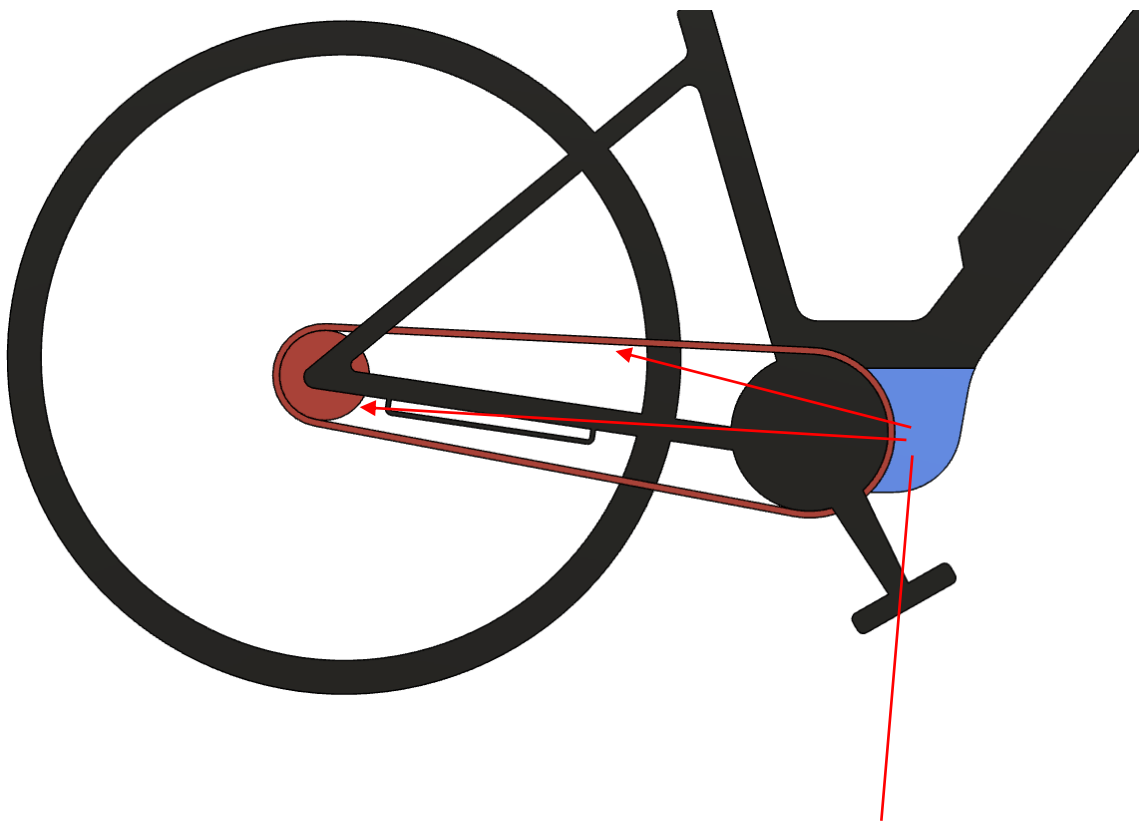
Electric bicycles powered by a mid drive unit are becoming more popular and affordable every year, but even these motors have their own issues that make riding experience less comfortable for the rider.

One of mentioned issue is effect of the motor torque power.

Due to the central position of the drive unit, its torque power is always transmitted to the chain/belt and a rear shifting mechanism (rear derailleur or internal gear hub). As a result, both the chain/belt and a shifting mechanism are under the significant pressure coming from the motor that they cannot handle.

The standard torque power of a mid drive unit is between 80 – 110Nm, the same values affect chain/belt and a shifting system.

Most of internal gear hubs cannot handle torque above 5 - 12Nm to shift up or down, therefore the shifting itself is not functional at all. The standard rear derailleurs have a larger range for a functional shifting, nevertheless shifting itself is loud, uncomfortable and non-functional in some situations.



The standard torque power of a mid drive unit is between 80 – 110Nm, the same values are transmitted to the chain/belt and a shifting system.

Because of this significant pressure the shifting procedure is uncomfortable, even non-functional in many situations.

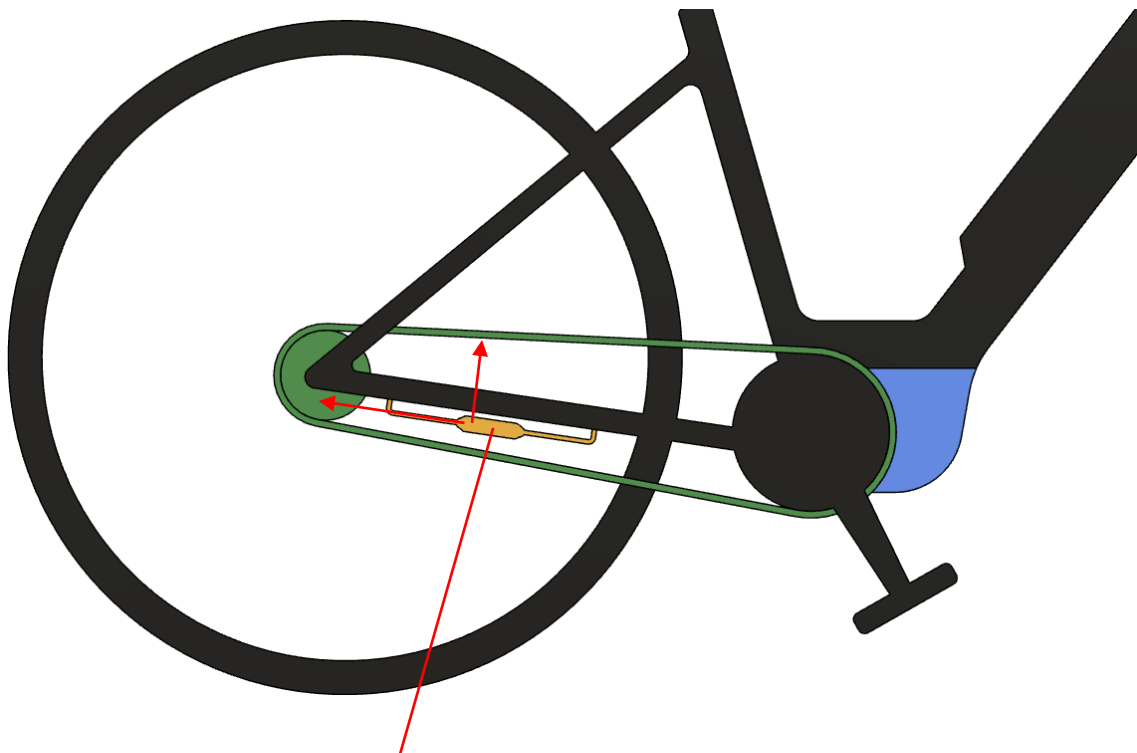
Solution – comfortable and functional shifting

We believe that every user of the electric bicycle powered by the mid drive unit should have as comfort ride as possible. Therefore we developed a product called gearsensor.com in the beginning of 2013.

The gearsensor.com is a special sensor fixed on a shifting cable that detects shifting process activated by the rider and reduces the motor torque power for a necessary period of time to shift up or down without any pressure on the components. It means there is no longer any pressure on the chain/belt and shifting mechanism, shifting process is comfortable and the rider can shift in any situation.

The gearsensor.com improves quality of the shifting process and prolongs lifetime of all related components.

The gearsensor.com can be used for both standard chain or belt.



The gearsensor.com reduces torque power of the motor when the rider needs to shift up or down. As a result, there is no longer any pressure on the chain/belt and shifting mechanism. The rider can shift without any complications, in any situation.

The gearsensor.com improves quality of the shifting process and prolongs lifetime of all related components.

Advantages of the gearsensor.com

- **Solves problems of a mechanical shifting related to a mid drive unit** (*gearsensor.com works similar as a clutch in the car. When the user starts with a shifting, the motor power is reduced for a necessary period of time which is required for a smooth shifting).
- **Provides perfect shifting in any situation** (for all standard rear/front derailleurs and internal gear hubs).
- **Prolongs lifetime of the whole shifting system** (as there is no longer any pressure applied to these components from the motor torque while shifting).
- **Removes loud sounds and decreases chance to break a chain/belt during the shifting.**
- **Provides easy shifting as on a normal bicycle.**

The gearsensor.com brand products are developed and made in the Czech Republic, with a European origin.

E-bike brands that use gearsensor.com (<https://gearsensor.com/e-bike-brands/>):



Compatible drive units (<https://gearsensor.com/compatible-drive-units/>):



More info at: <https://gearsensor.com/>.