Application No. 462: Build an electric motor

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Building a powerful electric motor for a motorcycle

Motorcycle with electric motor

I am a passionate DIY enthusiast, specialising in electric motors. I also run a website named www.amazingdiyprojects.com.

My biggest DIY project to date: I installed an electric motor in my Yamaha TZR 125 motorcycle!

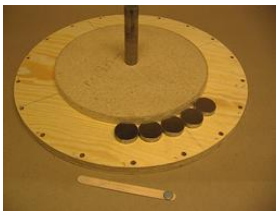
Yamaha before the modification

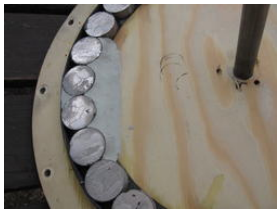
Instructions for the electric motor

Even though electric motors have been around for a while, so far I have not found any instructions that would enable the do-it-yourselfer to build a motor that is *actually* useful. That is why I decided to develop my own electric motor using simple materials and tools and which could be replicated by any tech-savvy person. More information can be found on my website.

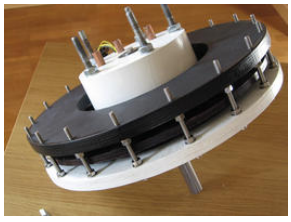
The following provides a quick look at building such a motor.

1. One side of the magnets (56 disc magnets type S-30-10-N (www.supermagnete.de/eng/S-30-10-N)) is roughened with sandpaper.
2. 28 magnets are placed on the rotor.
3. The magnets are mounted by slightly lifting each one individually and then gluing it on.





The completed motor with all of the electronics.



What makes this motor unique is that it can also be built without sensor and with a split stator. This is more favourable in some applications than the version with the Hall-effect sensor, which needs to be controlled by an expensive device.

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By the way, this motor has a name that needs to be savoured: It is a "brushless double-sided axial flux permanent magnet 3-phase AC air core air cooled Hall-effect sensor Delta connected" motor.

The Yamaha after the modification with a functional electric motor!

Test drive

This impressive video shows, that this modified motorcycle can reach speeds of 110 km/h, which is equivalent to an engine output of approx. 26 kW!

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Nicht einverstanden

Einverstanden

Articles used
56 x S-30-10-N: Disc magnet Ø 30 mm, height 10 mm (www.supermagnete.de/eng/S-30-10-N)

Online since: 07/03/2011

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