RC car shock absorber fully printed

Prism08

VIEW IN BROWSER

updated 22. 12. 2022 | published 22. 12. 2022

Summary

This is a yet another subset of my RC car project. It's 80 mm between axles.

1.05 hrs	1 pcs	0.30 mm	0.40 mm	PLA	14 g	Prusa MK3/S/S+

Toys & Games > Vehicles

Tags: rccar shockabsorber

It took me some trial & error to come up with this. It is most certainly not final because I need to tune it with the weight of the car. When loaded it should be partially compressed leaving some room for more compression and also some extension (when the wheel gets in a pothole).

The spring strength can be tuned adjusting the thickness and the height. The slide also needs to be adjusted by choosing the right overlap of the inner and outer parts...

I was mostly struggling to constrain the thing to move in only one direction (up or down). So I came up with the idea to double the spring with a slide

which worked in theory until the spring rotated into a funny shape. So I decided to pin it on both sides so that the attachment parts of the spring could be locked with the slide (which was... sliding !) So now it works just fine.

For demonstration purposes I've added a pin that goes inside the 5.5 mm (bigger) holes (to be replaced by the shock absorbers axles in the final design). As for the blocking pins (small holes) I'm using 2 M3 screws but I believe you could use some PLA pins and glue them.

A side effect of the slide is that it protects the spring from breaking because it acts as a stopper (for compression).

Happy experimenting and I hope you like the design!

PS: After err... experimenting, better print the spring in PETG... PLA does not like to flex so much...

I've since released the car ! You can get it at:

https://www.printables.com/model/281110-4wd-rc-car-185-parts

In the final design, the strength of the spring was increased by a factor of 2.

Model files

spring.stl

box.stl

pin.stl

slide.stl

Print files

box_03mm_pla_mk3s_1h3m.gcode

PLA | 0.40 mm | 0.30 mm | 1.05 hrs | 14 g | Prusa MK3/S/S+

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