

Rail Hinge for tracksaw and MFT-style table/ workbench

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VIEW IN BROWSER

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Summary

Attach this hinge to a makita or festool track to easily make repetitive cuts with an MFT-style table

Hobby & Makers > Tools

Tags: hinge makita festool tracksaw mft tracksawrail

I like my homemade MFT, but I am tired of the parf dogbench clips.

I liked Tamar's design for the 3d printed tracksaw hinge (linked below), but it is expensive (plus one needs to add international shipping).

I decided to give it a try.

My design is mostly based on Peter's Millard design (linked below) with a single hinge (similar to Tamar's). It means that the height of the back holder auto-adjusts to the thickness of the material.

My design relies fundamentally on the hinge created by Michiel Vandepoel:

https://www.printables.com/model/616849-fusion360-scalable-parametric-hinge

and thus I am making the Fusion360 files available as well.

Warning

Tamar's is right. The tolerances for a printing-in-place hinge that has no significant play are very tight. Thus you need a well calibrated printer (or modify the parameters in the Fusion360 file). I have included test prints of the hinge and the sliding mechanism of the holder for you to evaluate whether your printer can do it. I have printed everything at a 0.2m layer height with a Bambu lab X1C

The tolerances for the hinge are 0.2m. The tolerance for the sliding holders is 0.1 (it can probably be 0 in my printer)

Materials

- I used PLA (around 1⁄2 kg)
- 4 M5 25 bolts, nuts and washers
- 2 M5 20 bolts, nuts and washers

How to print

I recommend you watch Peter Millard's video first. It will give you an idea of operation of the tracksaw hinge and how the different pieces fit together. The main difference between this hinge and his is the hinge mechanism.

1. Start by printing the hinge test. You will need some force to get the hinge to “open” (i used a mallot and a vise). But once done, it should move freely. Don't print the hinge until you are happy with the tolerance.
2. Print the hinge.
3. Print the test-sleeve for the hinge. The hinge should slide freely inside. Furthermore, the tightness of the fit can be adjusted by tightening the screws. Test it.
4. Print the rest of the pieces
5. The front nipple might be too tight. Sand/file it. It should be exact.

Sliding fit

The lid of the sleeve can be tighten as much as you need it. The idea is that the hinge will slide freely without much play. It is very satisfying to see the mechanism auto-adjust to the height of the material to cut (a shoutout to Peter Millard for this idea).

Parameters

Everything was printed at 25% honeycomb infill, except for the tracksaw connector/adapter. (which I printed it with 100% infill).

Remixing

The holders (front and back) have 5mm holes. The idea is that you can attach it to the table exactly where you want it using bolts. Otherwise use the slots and T-tracks.

If you remix the actual hinge, please make sure that it gives credit to Michiel Vandepoel who is the original designer of the hinge mechanism.

Potential improvements

- The hinge can only rotate 90 degrees from the table plane, thus, it is a bit unstable (depending on how much track you have behind it). A 115 degrees hinge would be ideal. You can address this problem in one of three ways:
  - a) use a strong magnet (as a did) to keep the bolt of the tracksaw connector bound to the top of the sleeve (glue it).
  - b) use a counter-weight and attach it to the hole of the tracksaw. Properly done, this will allow you to easily move the track into/out of position.
  - c) modify the hinge (use Fusion360).

Final notes

Please, if you build it and/or have ideas for improvement, share them. Though this is a potential once-in-a-blue-moon print, it would be interesting to see how we can all improve the usability of the tracksaw.

Acknowledgments

We build on the shoulders of giants:

- I am very grateful to Michiel Vandepoel for publishing his great hinge design and for making the fusion360 file available (https://www.printables.com/model/616849-fusion360-scalable-parametric-hinge)
- Peter Millard for the idea of a pocket hinge
- Tamar Hannah for the idea of using a print-in-place hinge

Changelog

2024-10-15 First release.

2024-10-26 Added hinge with a tolerance of 0.4mm

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Model files



track-hinge.stl



trackhinge-test.stl



back-track-holder-lid.stl



frontholder.stl



testfit-2.stl



testfit-1.stl



back-track-holder.stl



tracksaw-connector.stl



front-support.stl



track-hinge-main-2024-10-15.f3d



track-hinge-04-tolerance.stl

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