



MendelMax Y-Axis Idler + Tensioner (GT2, M3 bolt)

 printaway

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Summary

This is a Y-axis belt tensioner for the MendelMax 1 / 1.5, using a 16-tooth GT2 pulley and an M3 bolt. I designed this...

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This is a Y-axis belt tensioner for the MendelMax 1 / 1.5, using a 16-tooth GT2 pulley and an M3 bolt.

I designed this because the original MendelMax Y axis idler/tensioner and every other design on Thingiverse (to date) all use a 608 bearing, which poses two problems:

- The smooth bearing causes backlash because the toothed side of your GT2 belt should not be on a smooth bearing.
- The radius of the bearing is much larger than the radius of the GT2 timing pulley you probably have mounted on your stepper on the other side. This means your belt's motion is slightly diagonal to your Y-axis's motion, cause some dimensional inaccuracy.

Another problem with some of the other idlers are that they're missing lips on the idler, so the belt can creep off the bearing and rub along the plastic. By using a proper GT2 idler gear, you solve this problem.

My design solves all three of these problems, and is similar to the Y axis idlers in other 2017/2018-era printers now.

Hardware Required:

- 1x long M3 screw. I used a 30mm one, but anything between 20-40mm should work.
- 1x M3 nut
- 2x M5 screws and T-slot nuts (drop-in or slotted) to mount it to your 2020 aluminium frame
- 1x 16-tooth GT2 pulley. A 20-tooth one should work too.

Printing Tips:

- Print everything on its side. (The models need to be rotated on their side, sorry about that!)
- Use supports!

Remix This:

- I designed this part in [Solvespace](#), a free open source CAD parametric program that's pretty easy to use. I uploaded the source files, so please feel free to edit it and remix to your liking! Solvespace is awesome software too, I highly recommend it!

Lastly, here's some designs I used myself before, took inspiration from, and tried to improve upon:

- [DanFineArt's MendelMax Y End Idler with Belt Tensioning](#)
- [Kludgineer's original MendelMax 1.5 design](#)

Big thanks to all these authors above!

P.S. The eagle-eyed among you might notice the GT2 belt dust beneath the idler in my photos. That's from the belt rubbing on the side of the old, original MendelMax idler I was using before. I promise it's not from this new idler. :)

Print Settings

Printer:

MendelMax 1.x

Rafts:

No

Supports:

Yes

Resolution:

0.2mm

Infill:

15%

Notes:

Rotate the models so they're lying flat. You want the flat side surfaces lying flat, to maximize strength.

Category: 3D Printer Parts

Model files



mendelmax_y-axis_idler_part_1.slvs



mendelmax_y-axis_idler_part_2.slvs



mendelmax_y-axis_idler_part_1.stl



mendelmax_y-axis_idler_part_2.stl

[Find source .stl files on Thingiverse.com](#)

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