

MendelMax Vertical X Axis Ends & Carriage - 10mm Z



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Summary

After successfully getting as much Z height from my first MendelMax as I could with these carriages: MendelMax...

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After successfully getting as much Z height from my first MendelMax as I could with these carriages:

MendelMax Vertical X Axis Carriages

I promptly dismantled it and sold its frame to fund a self-built Prusa i3 clone. Long story short, a few months later, I once again have a MendelMax! Thanks to the Postal Service, a large amount of the plastics in the kinematics were completely shattered. Since I had to replace the gantries anyway, I thought I'd install my previous vertical carriages onto this printer.

This machine, however, had 10mm smooth rods on the Z axis. Rather than reprint the Z tops and motor mounts, and replace them with 8mm rods, I decided to modify my previous carriage design to hold the LM10UU bearings that the machine came with.

Surprisingly, it's coming together and seems to work perfectly. So now, I share the design with you!

Technical Details

The Z axis smooth rods are 10mm in diameter, but the lead screw mounts are designed for 8mm TR-8x2 brass nuts, with four-screw flanges for attachment. LM10UU or LM10LUU bearings should work well here, as well as TR8 eBay leadscrews with the flanged nuts.

The rod distances (30mm smooth/leadscrew for Z, and 50mm smooth/smooth for X) are the same as in the "standard" Mendel design and do not require customized motor mounts or upper vertex rod stays.

Speaking of the smooth rods, X is still 8mm, while Z is now 10mm.

You likely will need a longer belt for the X axis. The original, stock, belt was too short for this configuration by an inch or two.

The X carriage itself has holes designed to securely hold a metal NEMA 17 motor mount. These work well for mounting Titan extruders.

There is no provision for mounting an X axis end stop switch. I'm re-using the existing one for this experiment.

The LM10UU bearings I use literally just snapped into the half-pipe provided. However, to get them seated correctly, you will likely need to file down or otherwise fit the overhang so that one of the bearings slides snugly into the circular hole next to the lead screw mounting holes.

Use your favorite flavor of zip tie to ensure that the bearings don't go anywhere.

This mod gave me, with a clone Titan extruder, and clone V6 hotend, 145mm of vertical height. I can push that to around 155mm, if I don't home the axis before lowering it, and I choose to lose ~30mm of X.

Bonus

For Z, I have included an end stop screw mount that attaches to the X carriage's 8mm rods. It's designed to hit this Z end stop mount:

[XYZ End Stops for Mendelmax 1.5+](#)

Come to think of it, this will work with my 8mm rod version of these carriages, too!

Attribution

I used:

- the "roundedRect" OpenSCAD module by WilliamAAdams
- the excellent zip-tie LM8UU bearing holder by skarab

I've added them as remixes on the side, and attributed them in the included source code for the parts. You will need skarab's STL file in order to fully render my SCAD source, and you will need to change the file path in the source to point at your version.

Caveat Emptor

Until I'm finished rebuilding this particular MendelMax, I am marking this as a Work in Progress, and consider it experimental. I don't believe I'll need to edit these carriages again, but I'd rather be safe than sorry.

Print Settings

Printer Brand:

Solidoodle

Printer:

Solidoodle 4

Rafts:

No

Supports:

No

Resolution:

0.3mm

Infill:

45% or MORE

Notes:

Printed in IC3D natural ABS filament.

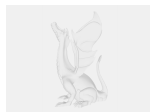
File down the overhangs such that the LM10UU bearing fits snugly in the circular hole provided.

You will also likely need to ream out the 8mm X axis rod holes, in order for them to fit snugly.

Remember, the higher the infill value, the stronger the part. These parts bear weight and considerable stress.

Category: 3D Printer Parts

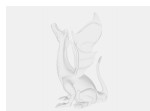
Model files



mendelmax_x_-_10mm_z.scad



x_axis_-_z_end_stop.stl



z_end_stop.scad



x_axis_-_idler.stl

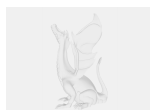


x_axis_-_carriage.stl



x_axis_-_motor.stl

Other files



sources.txt

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