

1. Mechanics

In this guide, we build the X-assembly; the mechanical part of the X axis.



INTRODUCTION

[video: https://youtu.be/KoSWsQWBTdU]

Step 1 — You'll need:



- X assembly front and back acrylic pieces
- LM8UU linear bearings (4)
- 6" zip ties (8)
- Vise grip

Step 2 — Bearings P.1



- Tip: Clean the Acrylic Pieces. It is a good precaution to first clean the acrylic pieces with cloth before joining as later the space between them will be inaccessible.
- Align Acrylic Pieces. The front piece has a bird etching on the lower left corner and the back piece has a branch etching in the lower left corner. 'Put the bird on the branch' on your left side to align the acrylic pieces. That is, the 'branch' piece will be on the bottom, and the 'bird' on top. After all, have you ever seen a branch on a bird?

Step 3 — Bearings P.2



- Thread in 8 zip ties through holes in the joined acrylic piece on both sides of the assembly. Make sure the head of the zip tie is on the back acrylic piece which has a slot for the bearings.
- Fit the bearings into the slots and finger-tighten the zip ties around them.

Step 4 — Tighten the Zip Ties Mightily



- Use vise grip to pull the zip ties in the opposite direction of how they naturally 'stick out' to tighten them well. Make sure when tightening that the zip ties stay on the head of the bearings and don't slip off. Take special care to tighten these zip ties well. If these bearings are loose, it could affect the print quality.
- Use your snips to clip the zip ties.

Step 5 — What you'll need for the X Motor



- X assembly
- X motor
- M3x16 socket screws (4)
- M3 serrated washers (4)
- Slide four M3 serrated washers on four M3x16 bolts.

Step 6 — Align the X Motor



- Follow the instructions etched on the X assembly, "X Motor adjoins right here to this side". The text is located just above the bird. Make sure the X motor connector is facing upwards and that the motor is on the opposite side than the bearings.
- Turn the X assembly over with the X motor securely in place aligned properly and secure it to the assembly with the M3x16 socket screws and serrated washers.

Step 7 — X Idler



• First, slide the two x idler bearings onto the M3x25 socket screw and tighten them with 4mm hex spacer. (That's the shorter of the two spacers!) Tighten well. The hex spacer is not exactly M3 size. The IMADE3D wrench has a special slot just for the spacer.

Step 8 — Attach the Idler to the X Assembly



- Tighten well and don't crack the acrylic. Make sure the bearing is on the same side of the X assembly as the motor pulley.
- Order of parts: Nylock locknut, Regular washer, Acrylic piece, Regular washer.

Step 9 — What you'll need to Mount the X Carriage:



- X assembly
- X carriage
- Smooth rods (2)
- 6" zip ties (4)

Step 10 — Mount the X Carriage: P.1



- Slide two smooth rods through the X carriage bearings.
- Thread carefully and without much force to avoid knocking out any balls out of the bearings.
- Check: the smooth side of the X Carriage must be facing the back - same side as motor pulley and idler.

Step 11 — Mount the X Carriage P.2



- Insert the smooth rods into the X assembly slots.
- Secure the smooth rods with 6" zip ties with the head of the zip ties laying on the smooth rods. Use vise grips to tighten the zip ties.

Step 12 — What You'll need for the X Linear Belt:



Step 13 — Thread the X Belt P.1



- Thread the X Belt through the X carriage, around the X motor pulley, and around the X idler.
- Use a 4" zip tie to secure the loop on the right side.

Step 14 — Thread the X Belt P.2



- On the idler side, pull the belt tight and secure it with two 4" zip ties. (This is a good job for two. One pulls while the other one tightens zip ties.)
- Check: The belt should be slightly tight when you finish.

Step 15 — Tensioning System



- Loop in two small 4" zip ties around the belt through the X carriage on the motor facing side.
- Clip the zip ties, but make sure to leave enough so you can still grab them with vise grip. These will be used later to tighten the belt once the printer is finished.