FT-6

Assembly Guide v0.05 Alpha

Folger Technologies LLC

www.folgertech.com

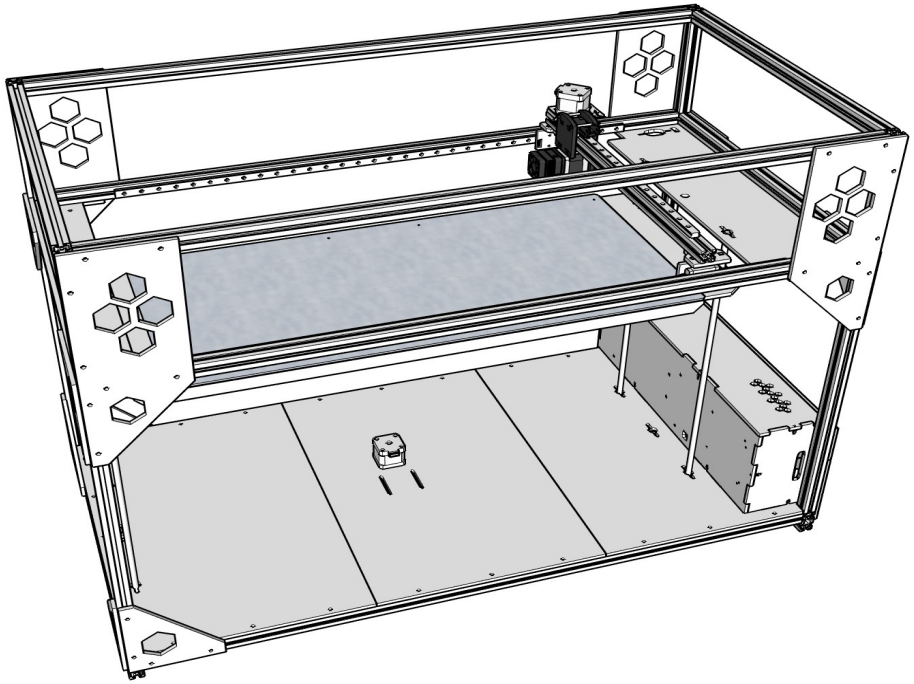


Table of Contents

ALPHA WARNING

This is an Alpha version of the assembly guide. It has only been released as a preview of the completed guide.

This guide is not meant to be used to assemble the kit. Do not following anything within this guide as it may be wrong.

Use a beta or better guide version for assembly of the kit.

Introduction

Congratulations! If you are looking over this guide it means that you are the proud owner of a Folger Tech FT-6 3D printer.

Our goal as a company is to provide affordable 3D printers to consumers worldwide. On top of this, we want everyone's first printing experience to be a great one. So this guide was assembled to provide guidance in assembling and understanding common procedures while using this printer. It covers everything from assembly to the maintenance required to keep the printer performing like new.

Contacting Folger Tech

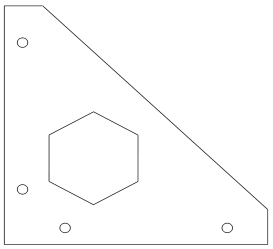
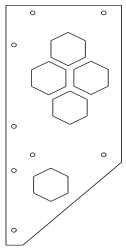
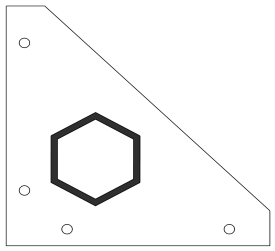
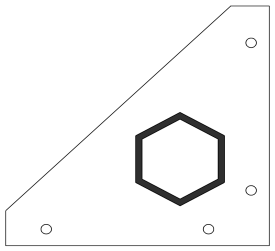
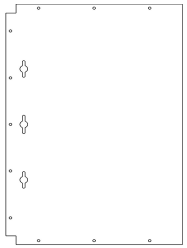
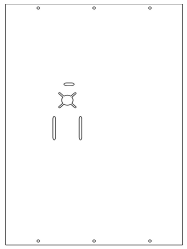
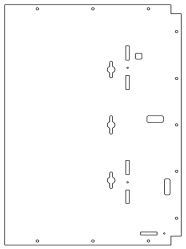
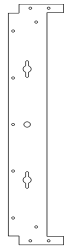
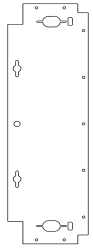
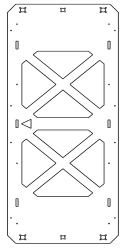
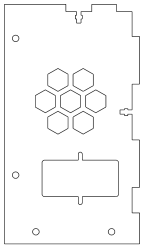
We understand that this guide only covers the basics of your Folger Tech kit. If at any time you need more assistance, visit our support page at Folger Tech Support to send us a message or give us a call at (888) 397–8160 and we will be happy to address your question or concern.

DISCLAIMER OF LIABILITY: FOLGER TECHNOLOGIES LLC specifically DISCLAIMS LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES and assumes no responsibility or liability for any loss or damage suffered by any person as a result of the use or misuse of any of the provided information or product. FOLGER TECHNOLOGIES LLC assumes or undertakes NO LIABILITY for any loss or damage suffered as a result of the use, misuse or reliance on the information and or product. USE AT YOUR OWN RISK: Never leave your printer unattended.

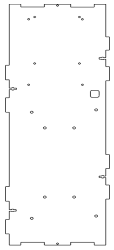
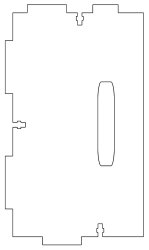
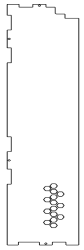
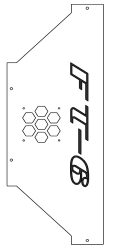
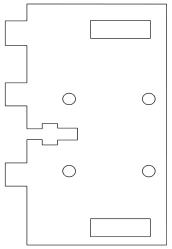
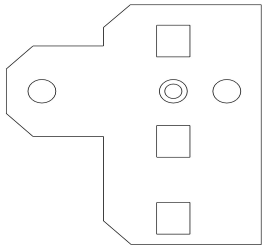
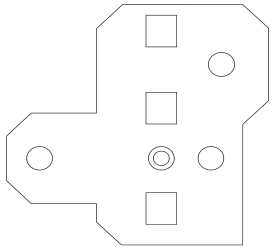
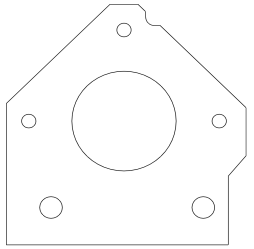
Preparation and Tips

- Unwrap and lay out all of the parts in the box.
- Pull off all of the protective film on the ACM parts and verify with the list on the next page.
- Verify that all of the hardware listed on the hardware bags are included (there will be extras).
- We recommend sorting the hardware into containers to make identification faster during the build. (egg cartons can be useful for this)
- Pull off the film and remove all of the cutting particles from the 2020 and 2040 beams.
- Make sure you have a large, clear, and flat surface to build on.
- Go slow and check your work, rushing could cause issues in print quality and operation.
- Make sure there is no damage on any parts and report any issues to us right away.
- Be careful when handling the ACM parts, the edges are sharp.
- A deburring tool works great for knocking down the sharp edges of the ACM.
- Gather the parts called out in each step and read through all of the text before performing the step.
- Pay close attention to the images in each step, orientation is very important.
- Printing out the ACM parts list makes it quick and easy to reference during assembly.
- To help with orientation: X is side to side, Y is front to back, and Z is up and down.

ACM Parts List

 (8) BFP-01	 (4) BFP-02	 BFP-03	 BFP-04
 BFP-05	 BFP-06	 BFP-07	 BFP-08
 BFP-09	 BFP-10	 (2) BFP-11	 BFP-12

ACM Parts List (continued)

 BFP-13	 BFP-14	 BFP-15	 BFP-16
 (2) BFP-17	 BFP-18	 BFP-19	 BFP-20

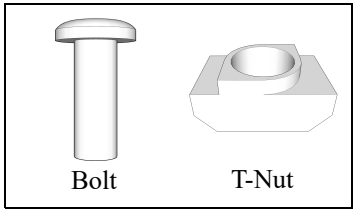
LCD, Hotend, and extruder ACM parts are listed in their separate sections.

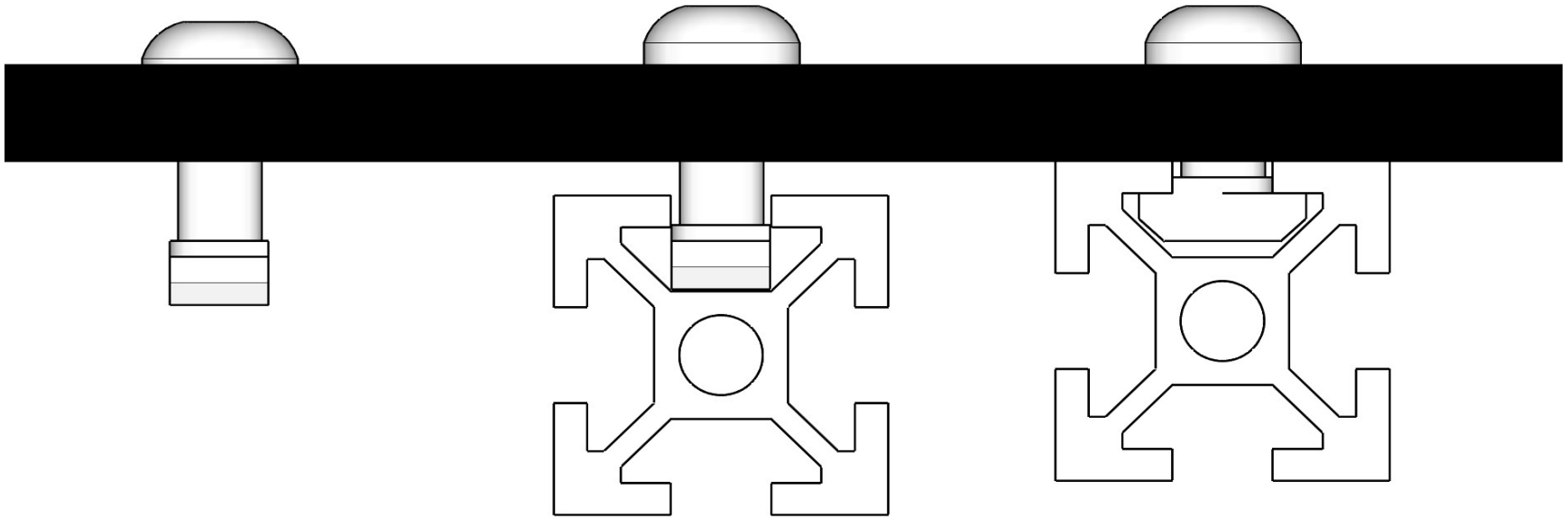
Please go through the ACM parts list above and the labels on the hardware packages to check your kit's contents.

If anything is missing or damaged, contact *Folger Tech* within (14) days of delivery for replacements.

Now let's get this kit built!

T-Nut Usage

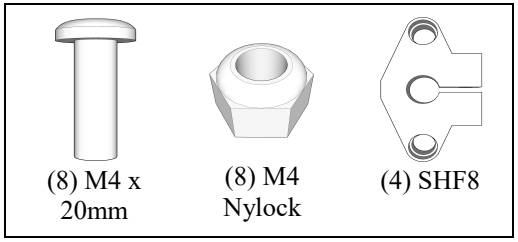


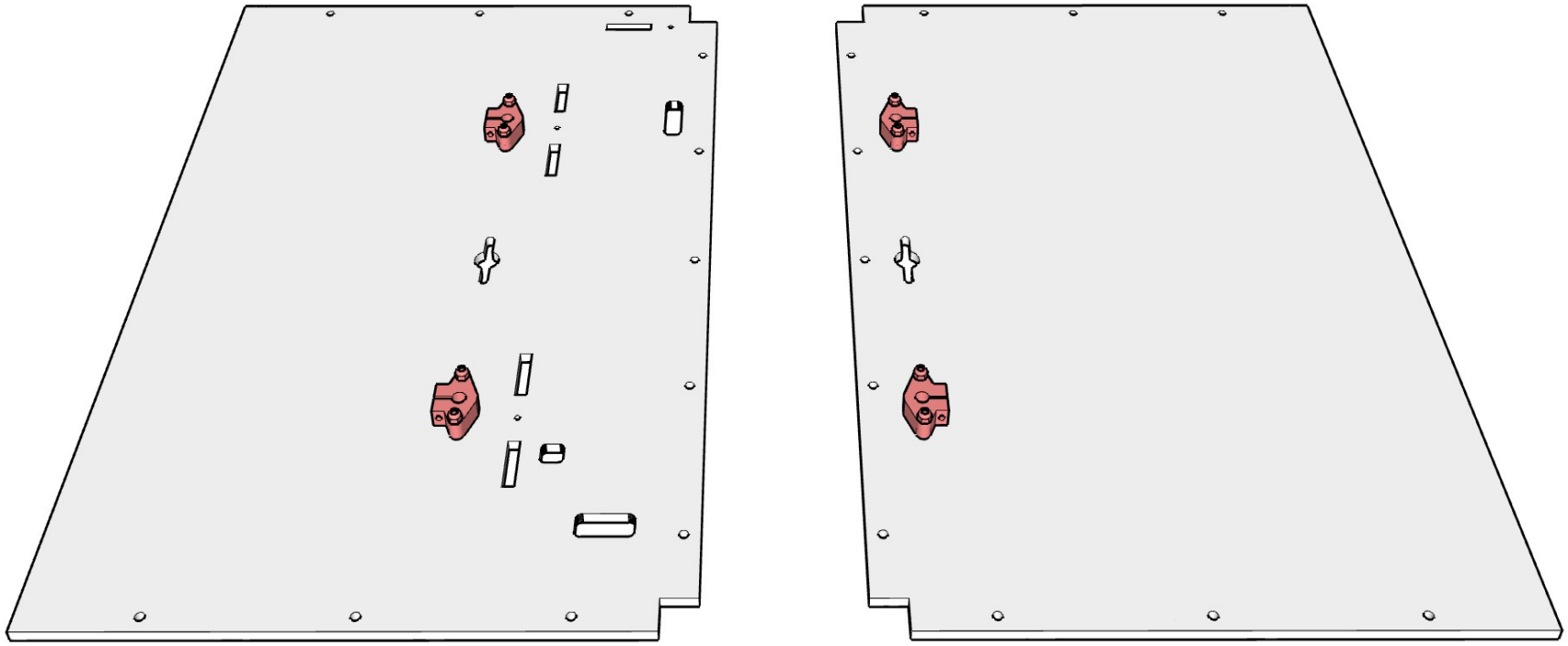


1) Insert the bolt through the hole in the panel then turn the t-nut on a few turns.
2) Insert the t-nut into the slot of the extrusion making sure it is centered.
3) Tighten down the bolt making sure the t-nut turns to lock into the slot.

Z Assembly

Step 1

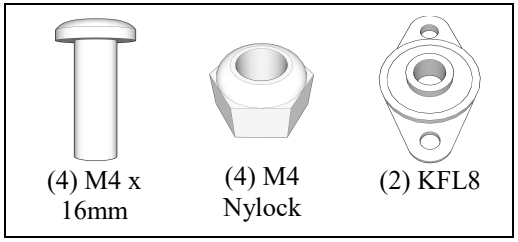


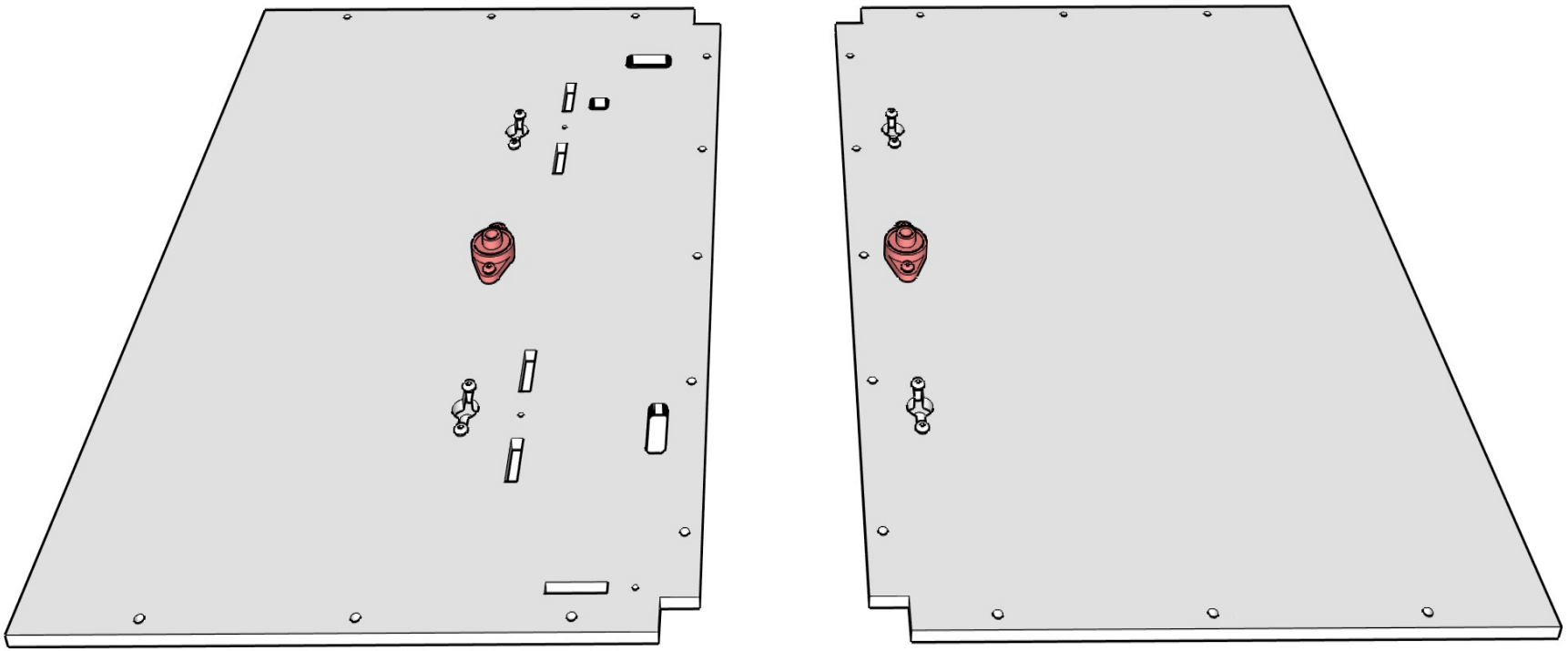


Mount the (4) SHF8s to BFP-05 and BFP-07. The bolts go on the bottom with the nut on top.

Z Assembly

Step 2

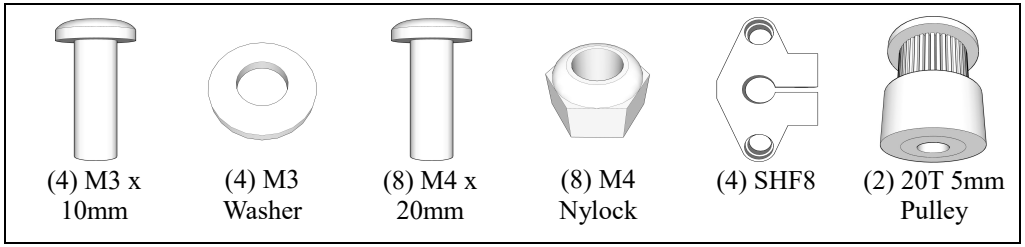


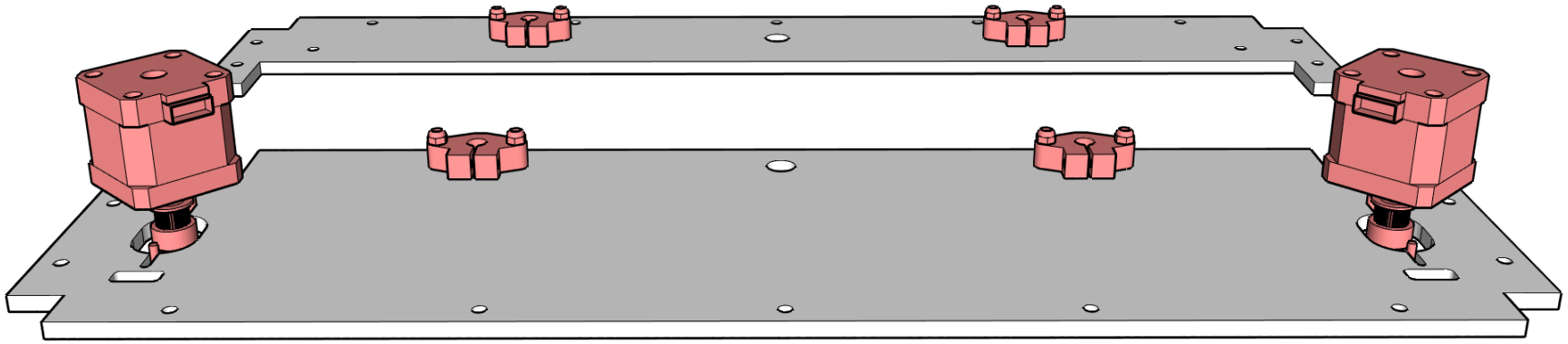


Flip the panels over and mount the (2) KFL8s. The bolts go on the top. Make sure the center of the KFL8s swivel in the socket. You may need to add some oil and work them a bit.

Z Assembly

Step 3

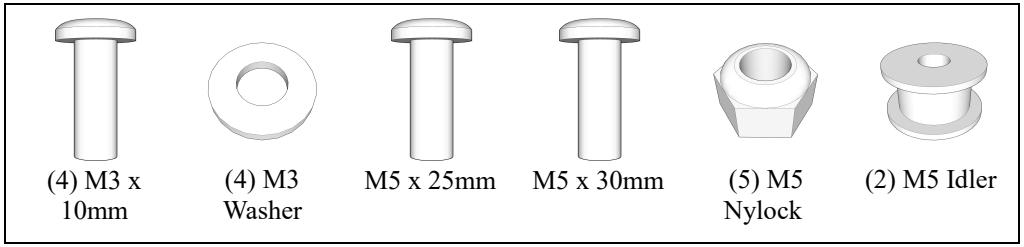


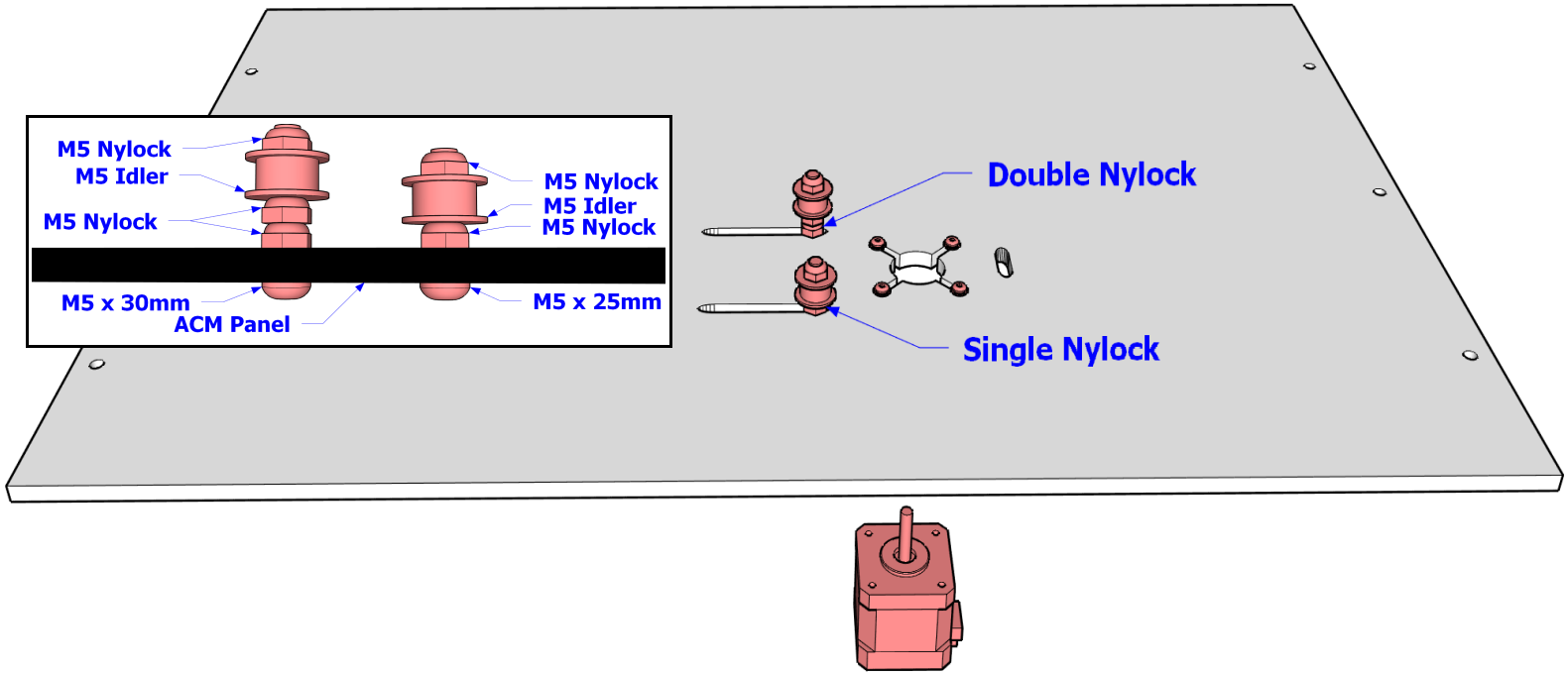


Mount the (4) KFL8s to BFP-08 and BFP-09 using the M4 hardware. Mount a pulley upside-down to each stepper, flush with the end. Mount the steppers using the M3 hardware. All of the bolts go on the bottom. Make sure you face the stepper plugs the correct direction.

Z Assembly

Step 4

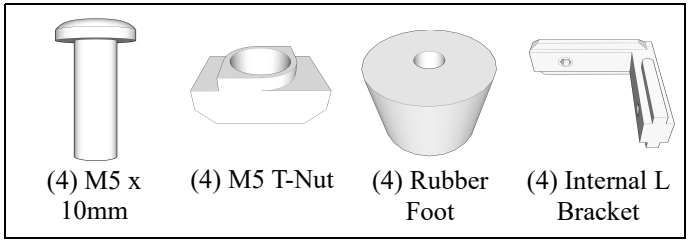


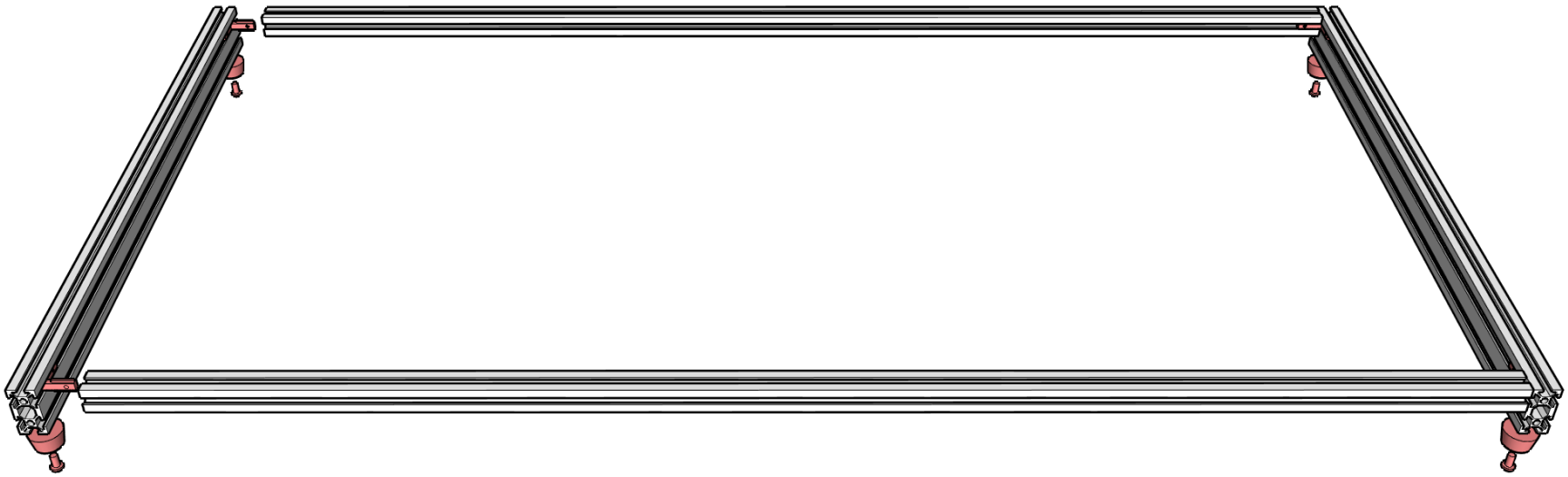


Mount the stepper to BFP-06 using the M3 hardware. Assemble and mount the (2) idlers as shown using the M5 hardware. Make sure the idlers spin free.

Frame Assembly

Step 1

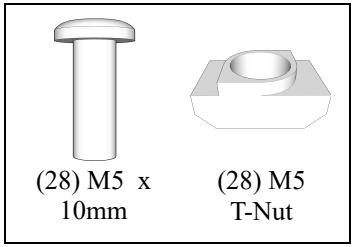


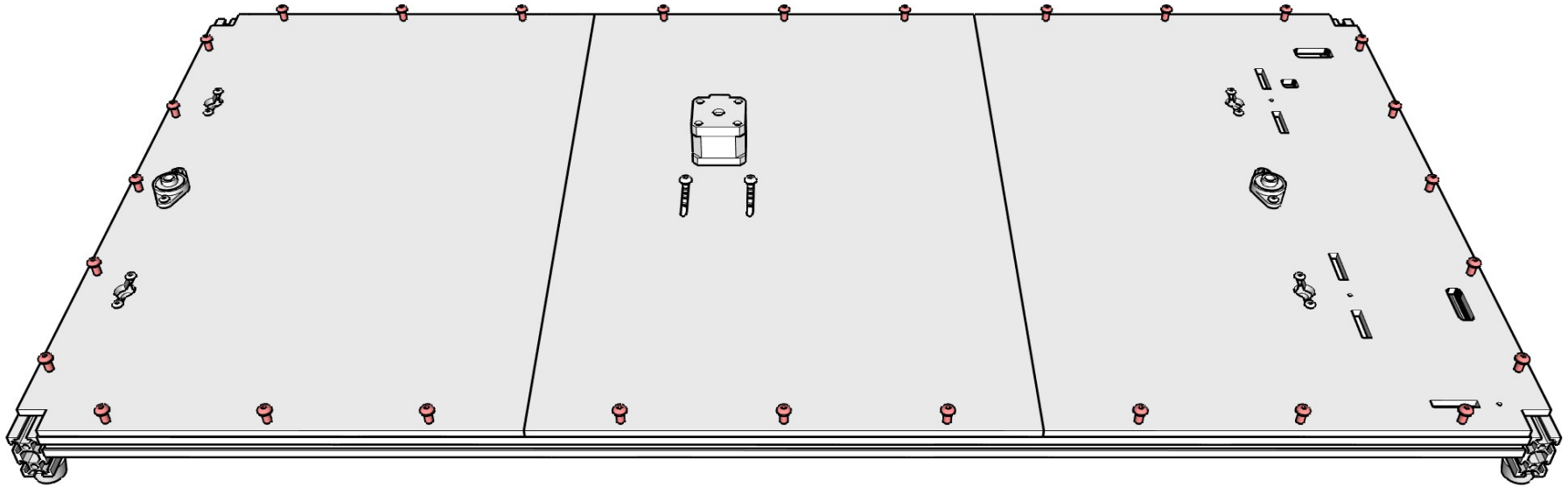


Assemble the lower frame with (2) 1000mm 2020 and (2) 540mm 2040 using the internal L brackets and grub screws. Mount (4) rubber feet using the M5 hardware. **Make sure the joins are square and flush.**

Frame Assembly

Step 2



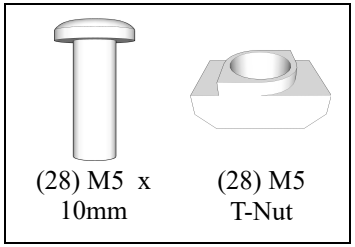


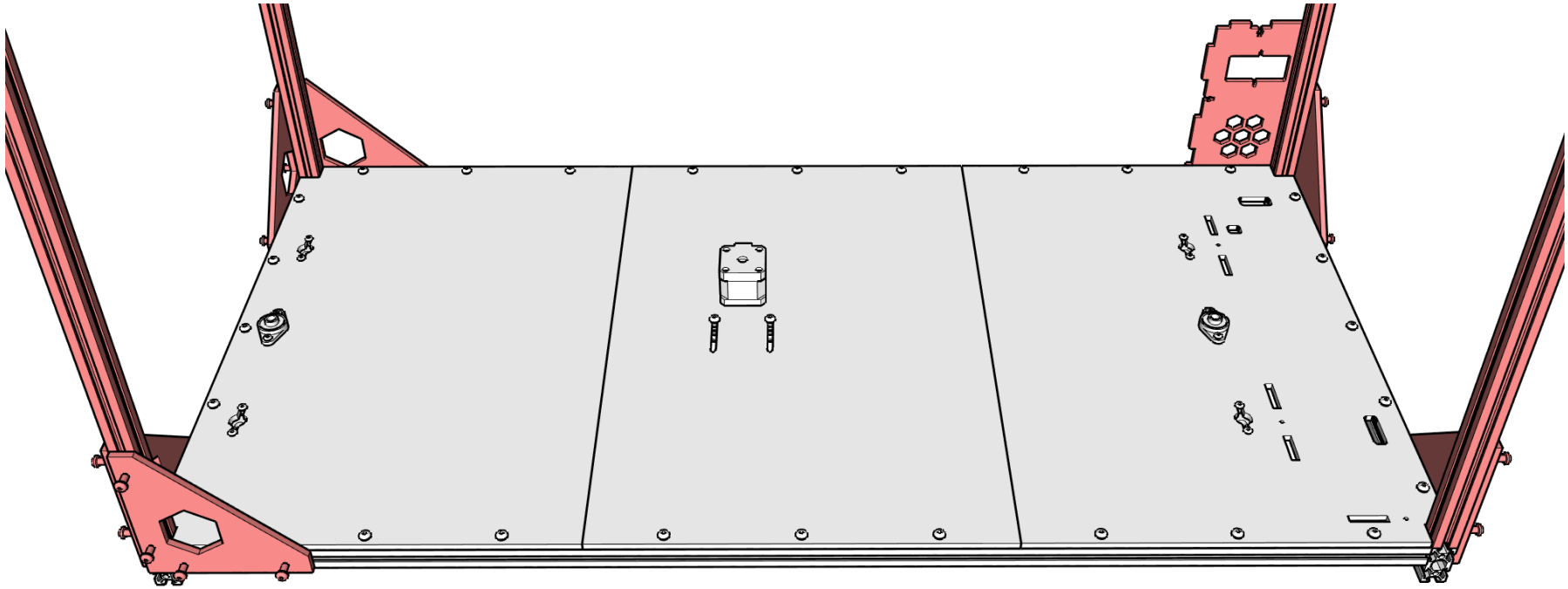
Mount the (3) lower panels using the M5 hardware. Make sure the orientation is correct.

The side facing toward you in this image is the front.

Frame Assembly

Step 3

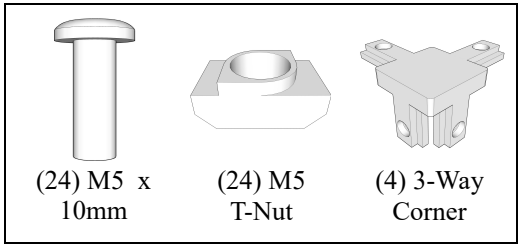


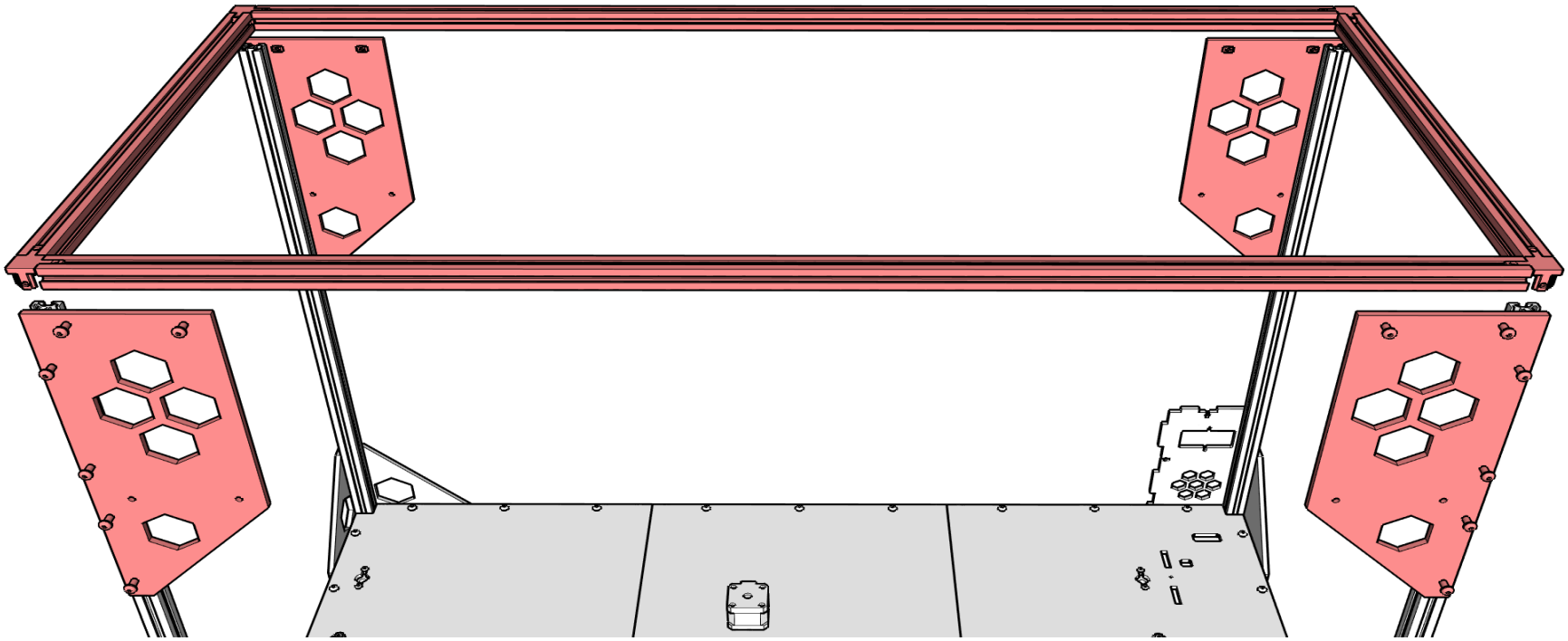


Mount (2) 700mm 2020s on the left with BFP-01s. Mount (2) 700mm 2020s on the right with BFP-03, BFP-04, and BFP-12. **Make sure the joins are square and flush against the lower frame.**

Frame Assembly

Step 4

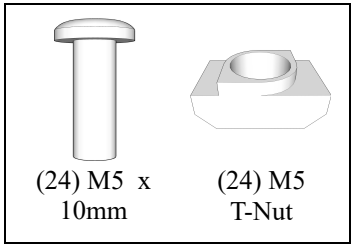


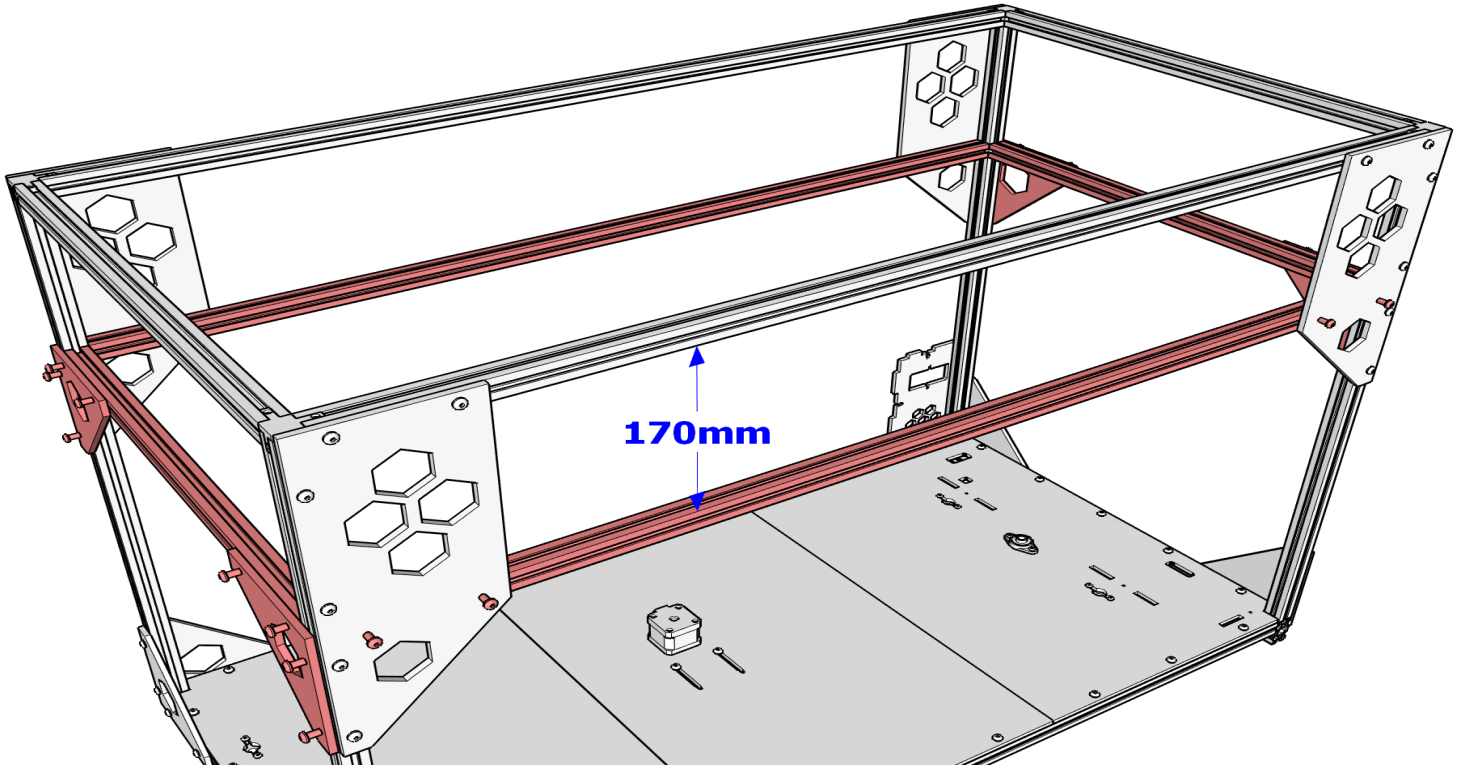


Assemble the top frame with (2) 1000mm 2020 and (2) 500mm 2020 using (4) 3-way corners. Mount the top frame to the uprights using BFP-02s and M5 hardware. **Make sure the joins are square and flush.**

Frame Assembly

Step 5

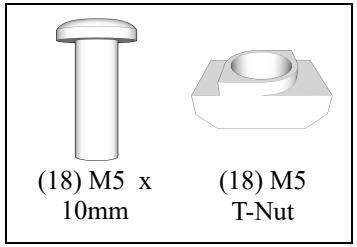


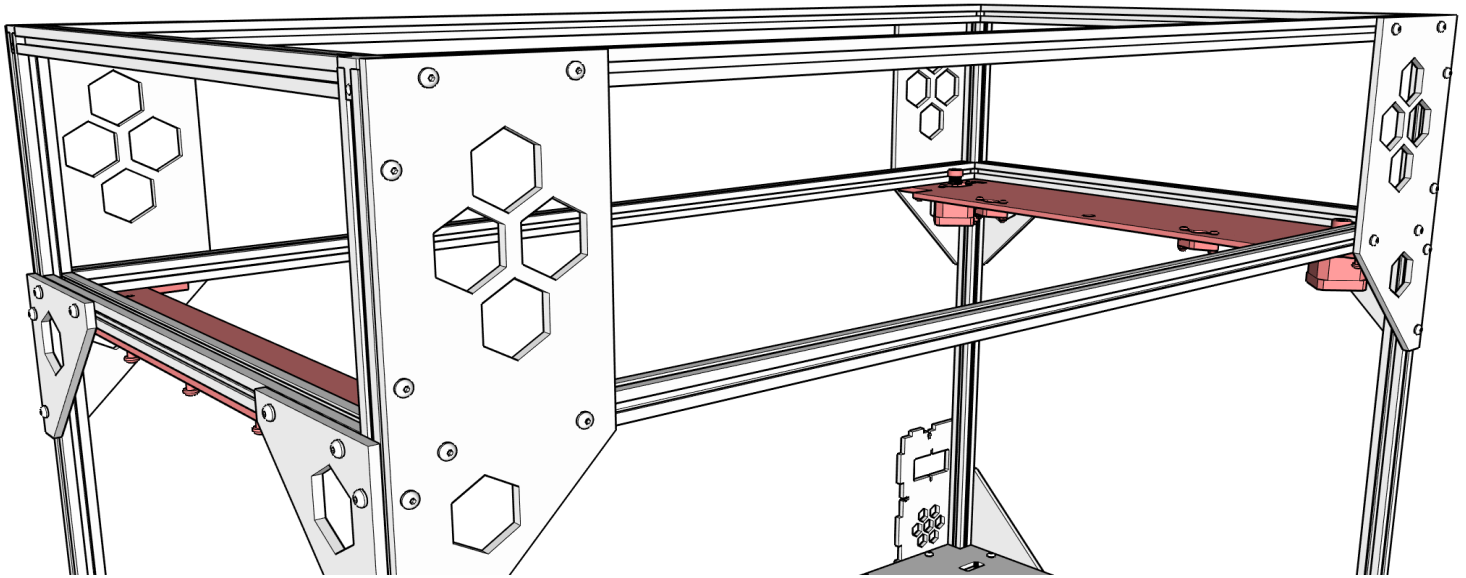


Mount (2) 1000mm 2020 and (2) 500mm 2020 using BFP-02s and M5 hardware. **Verify the top 2020 to middle 2020 spacing is 170mm all the way around.**

X Assembly

Step 1

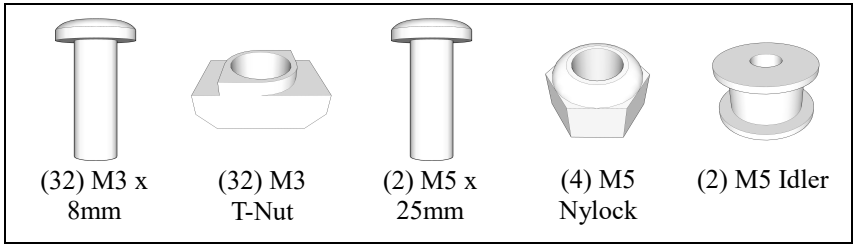


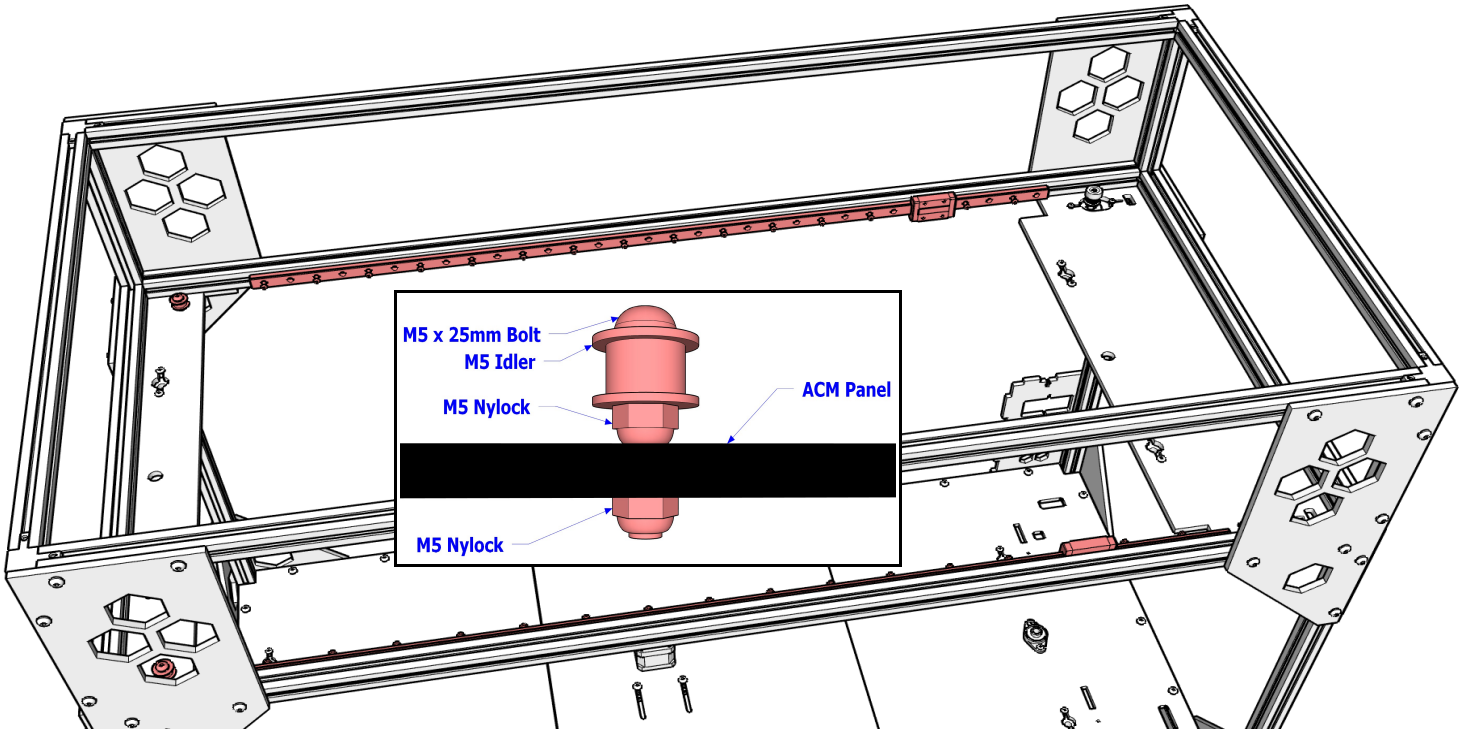


Mount the assembled BFP-08 and BFP-09 to the underside of the middle 2020 using the M5 hardware.

X Assembly

Step 2

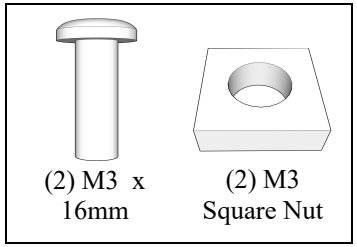


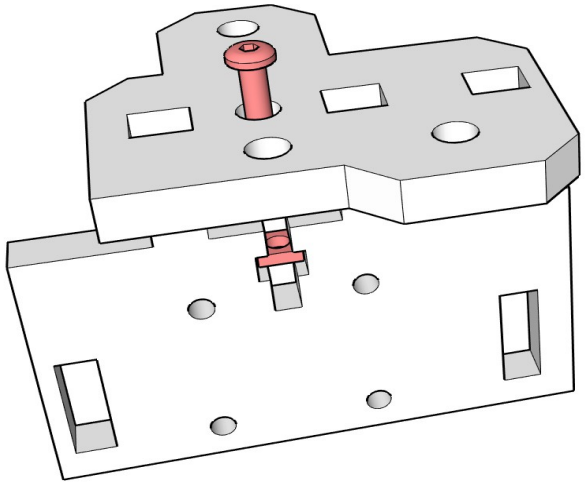


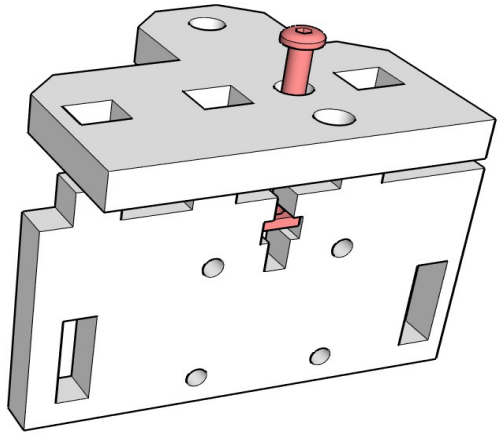
Mount the (2) idlers using the M5 hardware. Make sure the idlers spin free. Mount the (2) 800mm linear rails between the upper plates using the M3 hardware in every other hole.

Y Assembly

Step 1



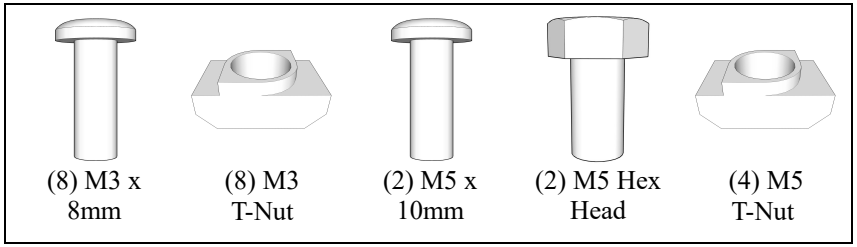


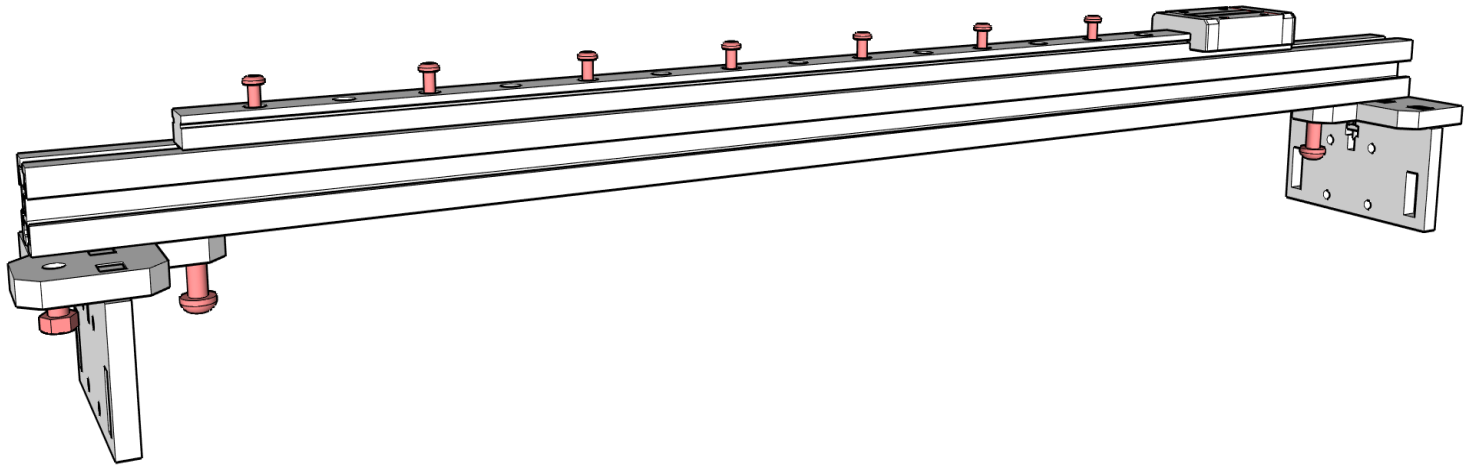


Mount BFP-18 and BFP-19 to the (2) BFP-17s.

Y Assembly

Step 2

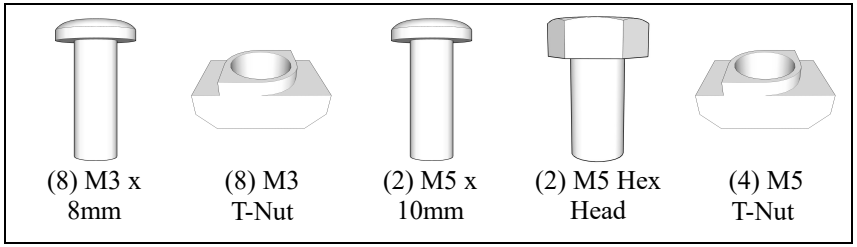


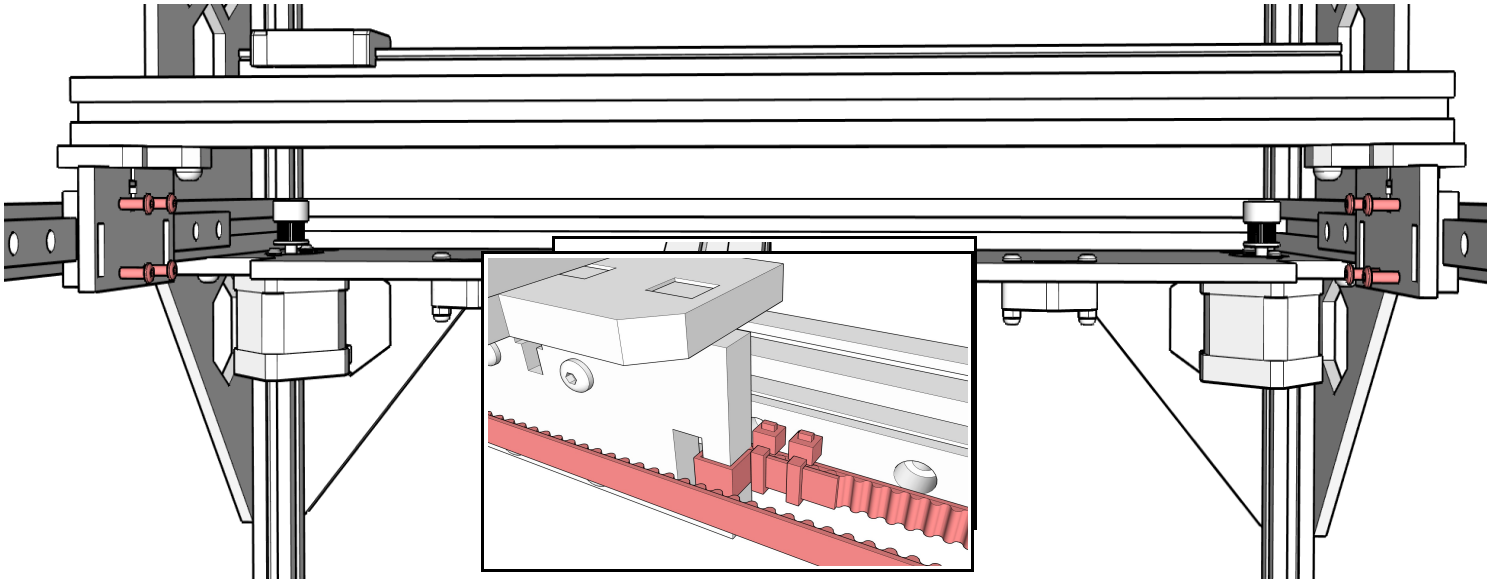


Mount the assemblies from the last step to the ends of the 500mm 2020 using the M5 hardware. Make sure the hex head bolts are on the ends. Mount the 400mm linear rail 50mm from either end of the 2020 using the M3 hardware in every other hole.

Y Assembly

Step 3

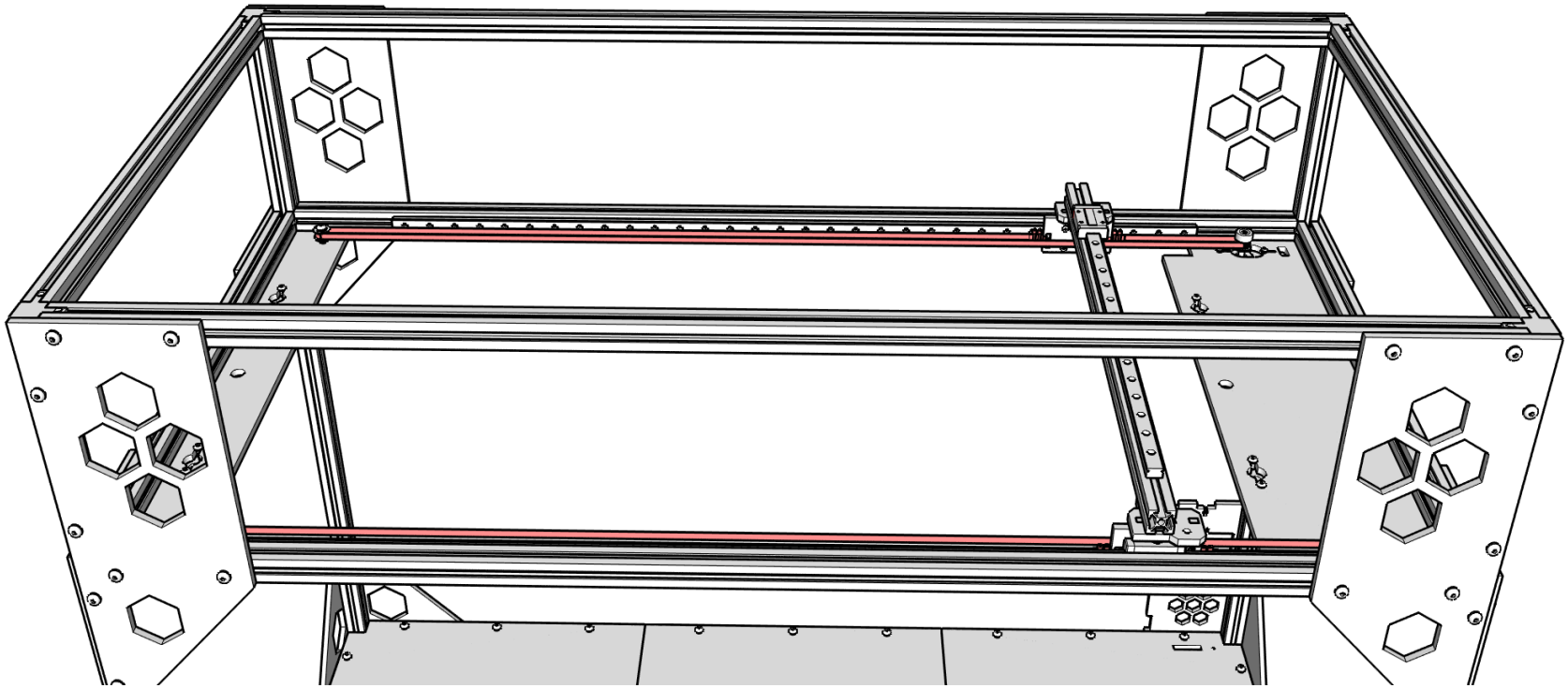




Mount the part we assembled in the last step to the blocks on the linear rails using the M3 hardware.
Make sure BFP-19 is on the front end.

Y Assembly

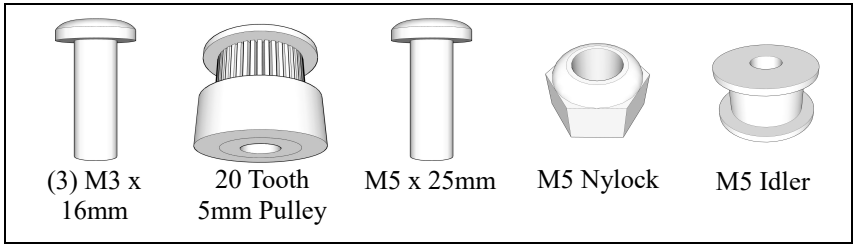
Step 4

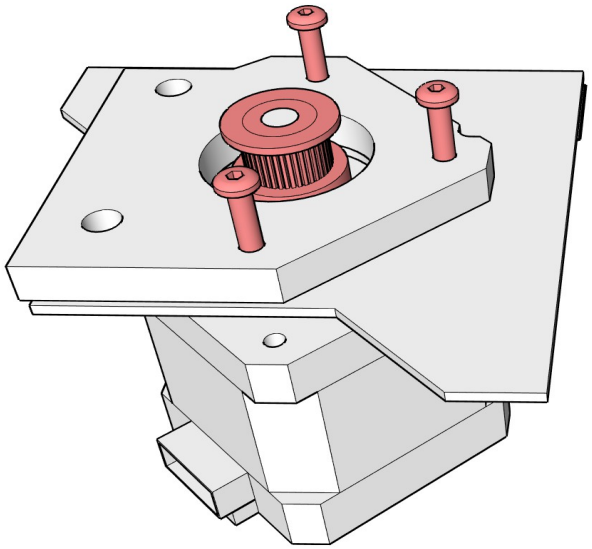


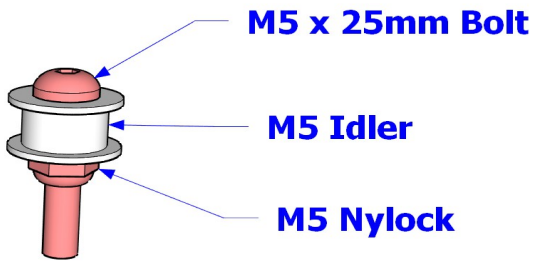
Install the X belts with the teeth against the pulleys. Trim and secure to the tabs with cable ties as shown. Tighten them by adjusting the steppers.

Y Assembly

Step 5



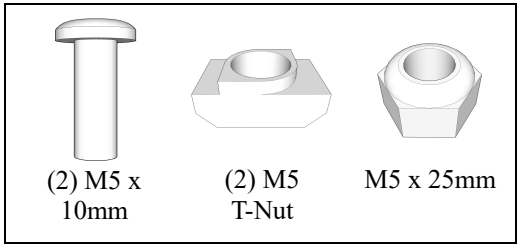


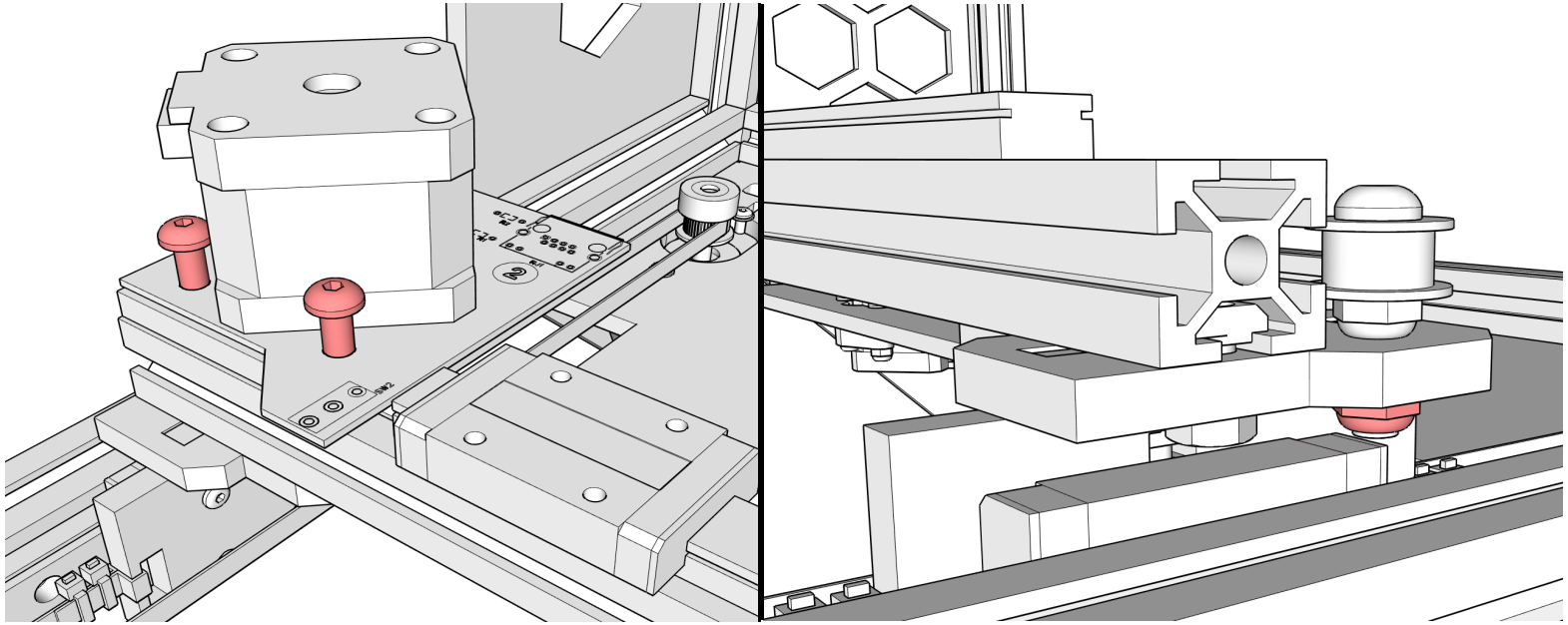


Mount the pulley to the stepper flush with the end. Stack BFP-20 on top of the gantry board and mount to the stepper using the M3 hardware. Assemble the Y idler using the M5 hardware.

Y Assembly

Step 5

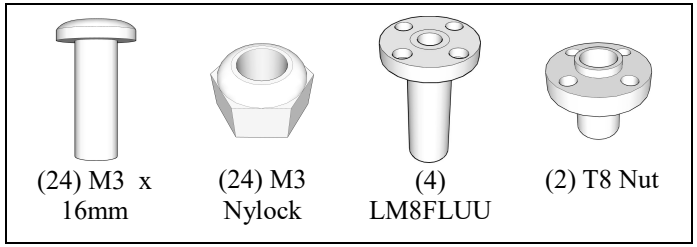


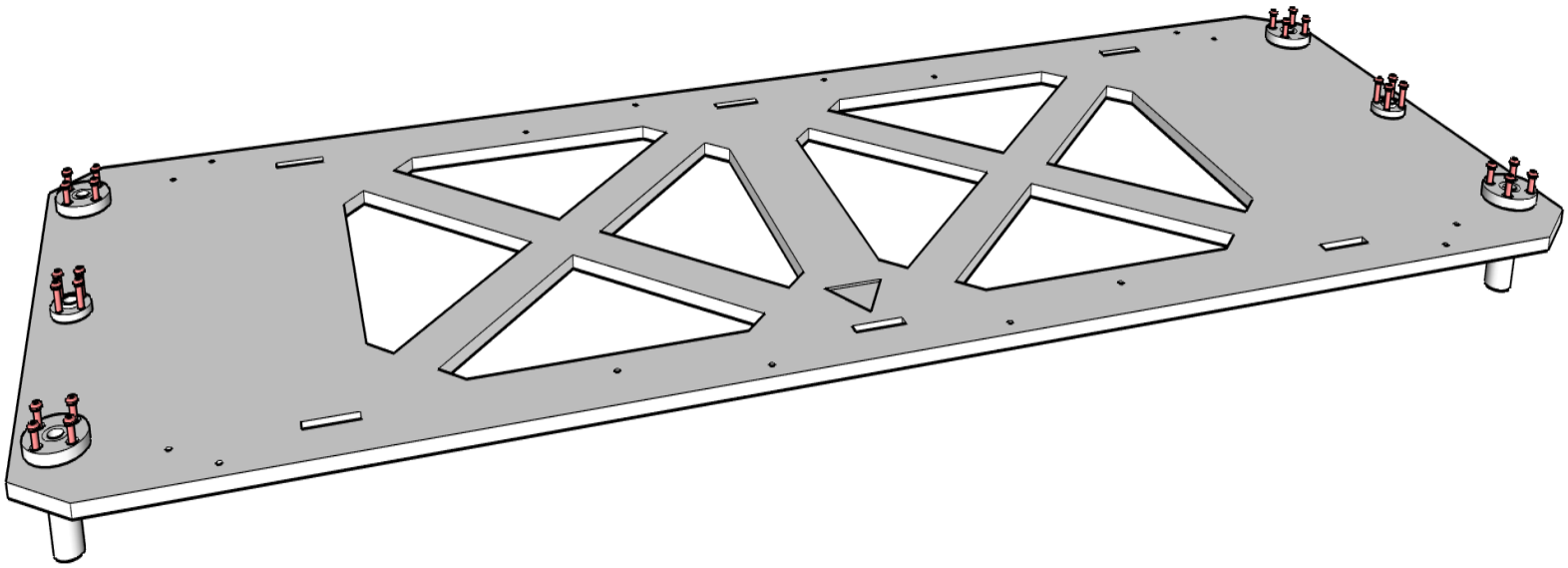


Mount the Y stepper assembly to the rear end of the gantry using M5 hardware. Mount the Y idler to the hole in BFP-19 using the M5 nylock.

Bed Assembly

Step 1

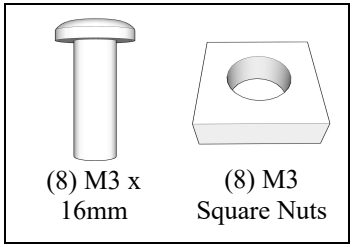


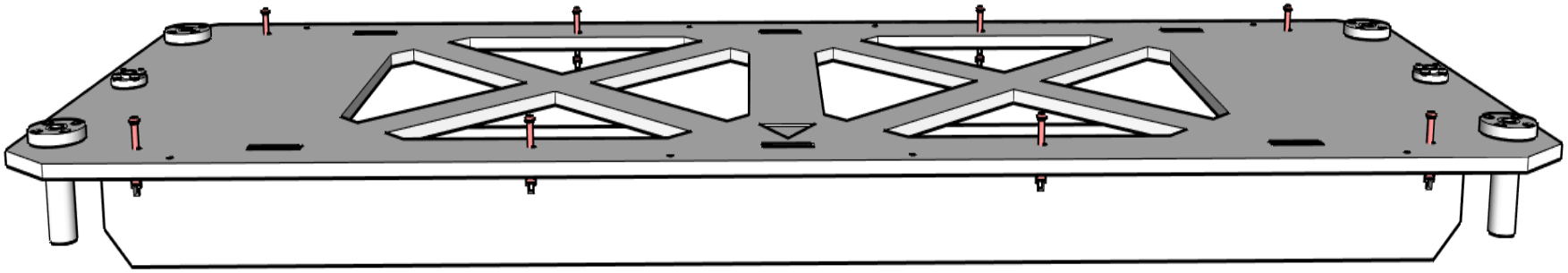


Mount the (4) LM8FLUUs through the corners of BFP-10. Mount the T8 nuts through the middle holes. Make sure the arrow is facing you and on top.

Bed Assembly

Step 2

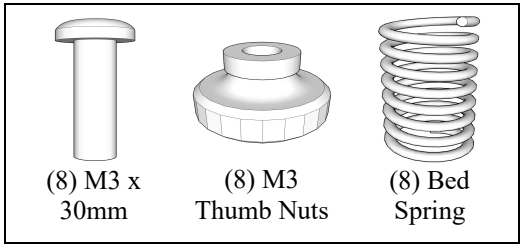


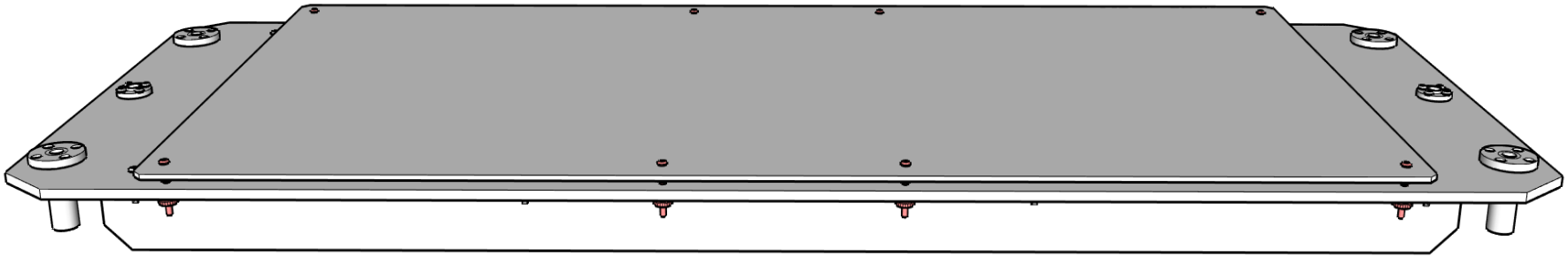


Mount the BFP-11s to BFP-10 using M3 hardware.

Bed Assembly

Step 3

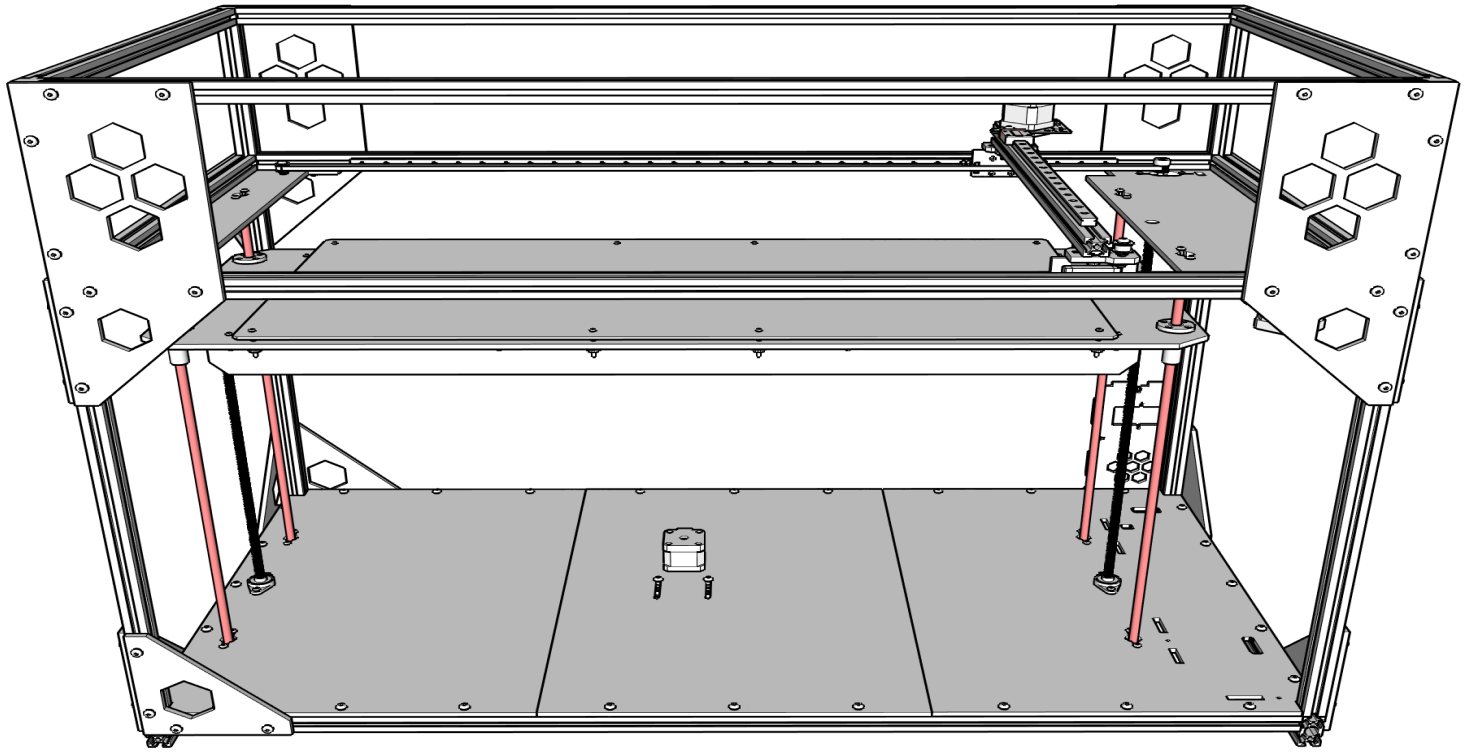




Mount the bed to BFP-10 using the M3 hardware and bed springs.

Bed Assembly

Step 4



Mount the bed assembly to the printer by sliding (4) 500mm PCRs into the corners and thread (2) M8 lead screws into the middle. Tighten the SHF8s to hold the PCRs in place. Tighten the set screws on the KFL8s to hold the lead screws in place.

Bed Assembly

Alignment

1) Make sure all joins are flush and square. Adjust if necessary.

2) Make sure the gantry slides left to right and is square with the frame. Adjust the M5 hardware in *Y Assembly – Step 2* if necessary. The hex heads were used to provide access to the bolts once assembled.

3) Make sure the PCRs are square with the lower plate. Move the bed up and down. If any binding is found, adjust the SHF8s installed in *Z Assembly – Step 1* and *Z Assembly – Step 3*.

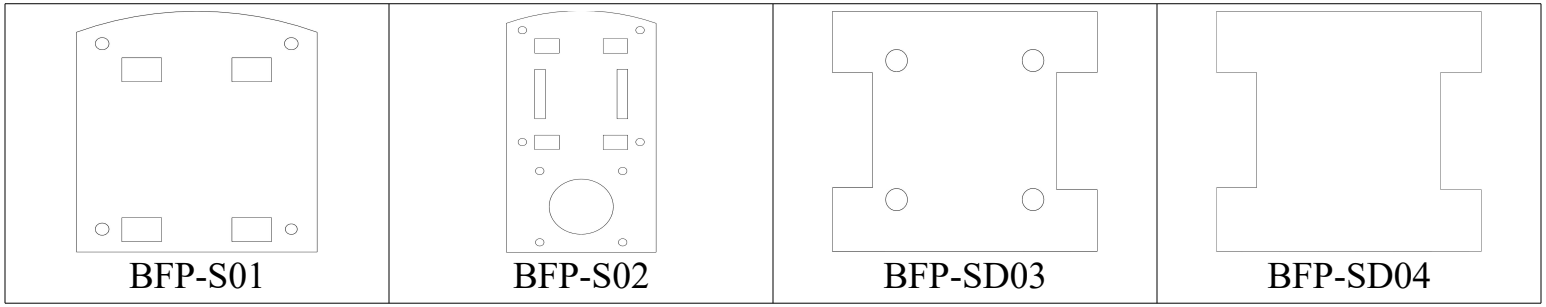
4) Make sure all joins are still flush and square. If adjustment is needed, repeat steps 2 and 3 after making the adjustments.

The following sections are divided by kit options.
Choose the sections depending on the options in your kit.

None/Single Extruder

For dual extruder, skip to the next section.

Additional ACM parts used in this section:

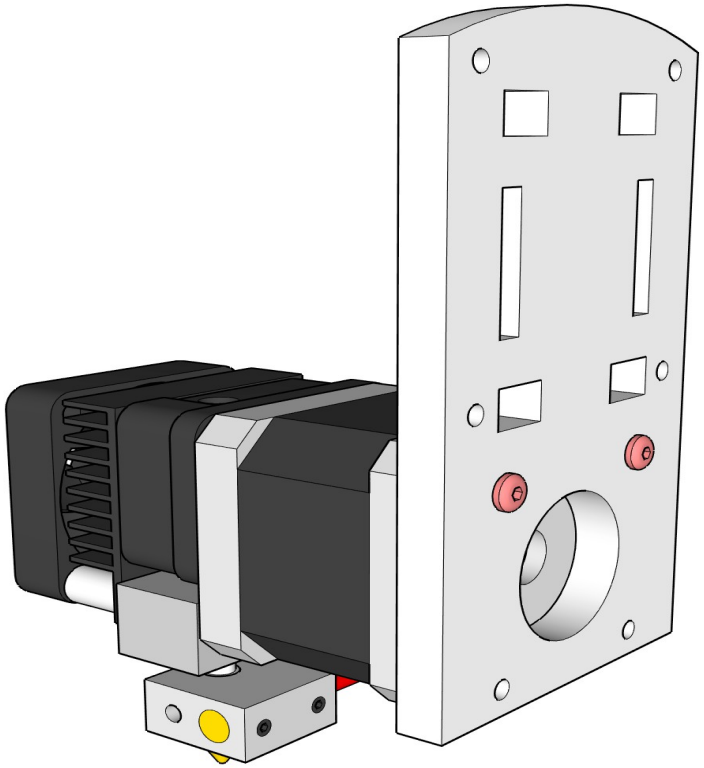


If you ordered the no extruder option, use these steps as a guide to assemble your specific extruder/hotend setup. You can reference solutions for the FT-5 R2 as the single FT-6 carriage is the same.

Carriage (none/single)

(2) M3 x 40mm

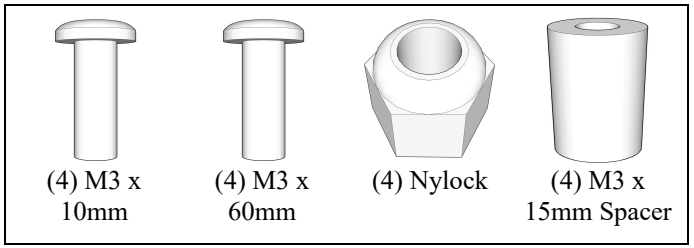
Step 1

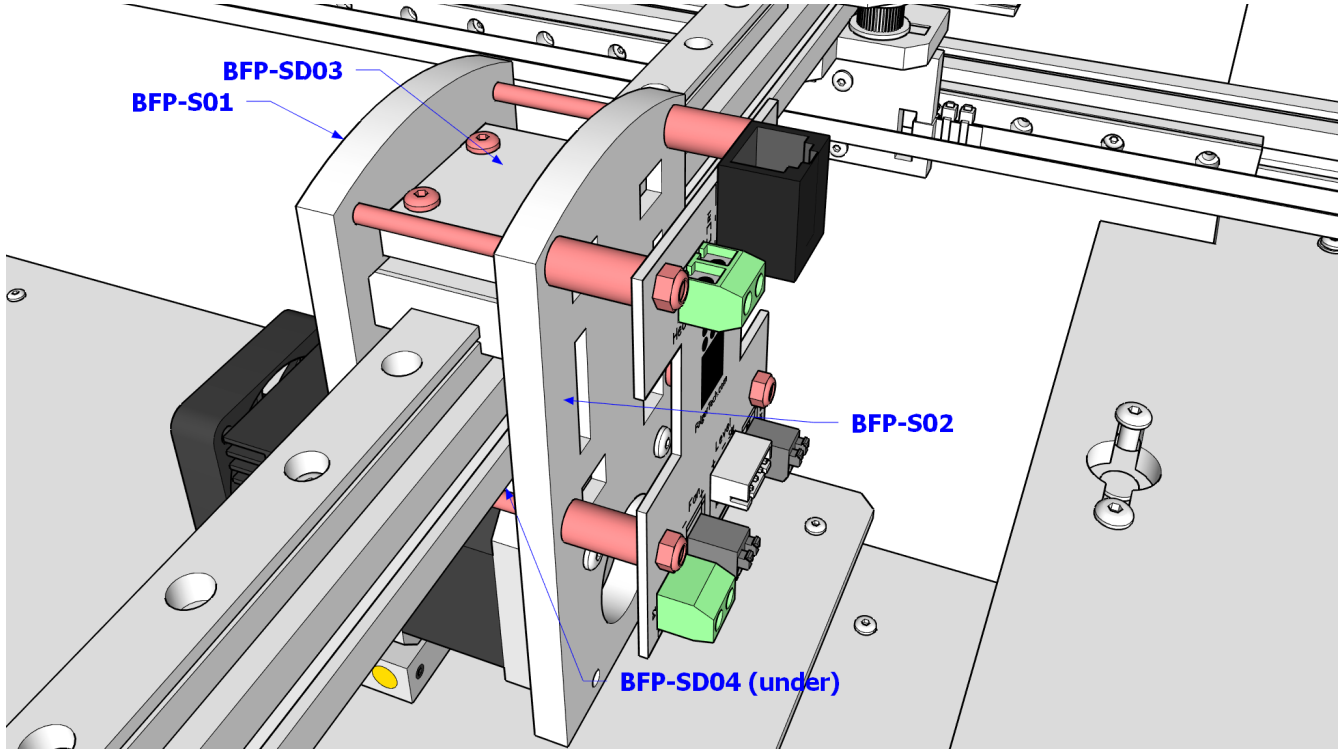


Remove the top 2 bolts on the back of the stepper. Mount the stepper to BFP-SD02.

Carriage (none/single)

Step 2



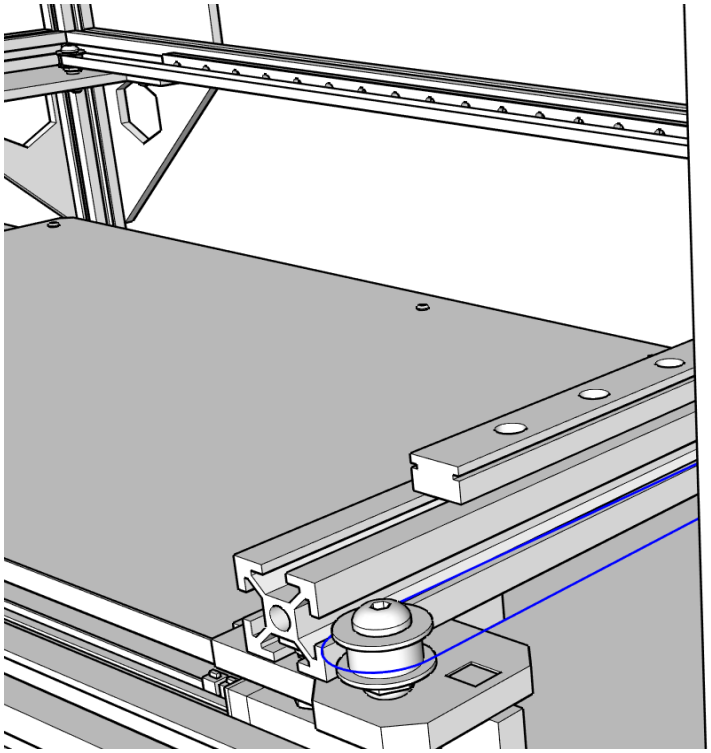


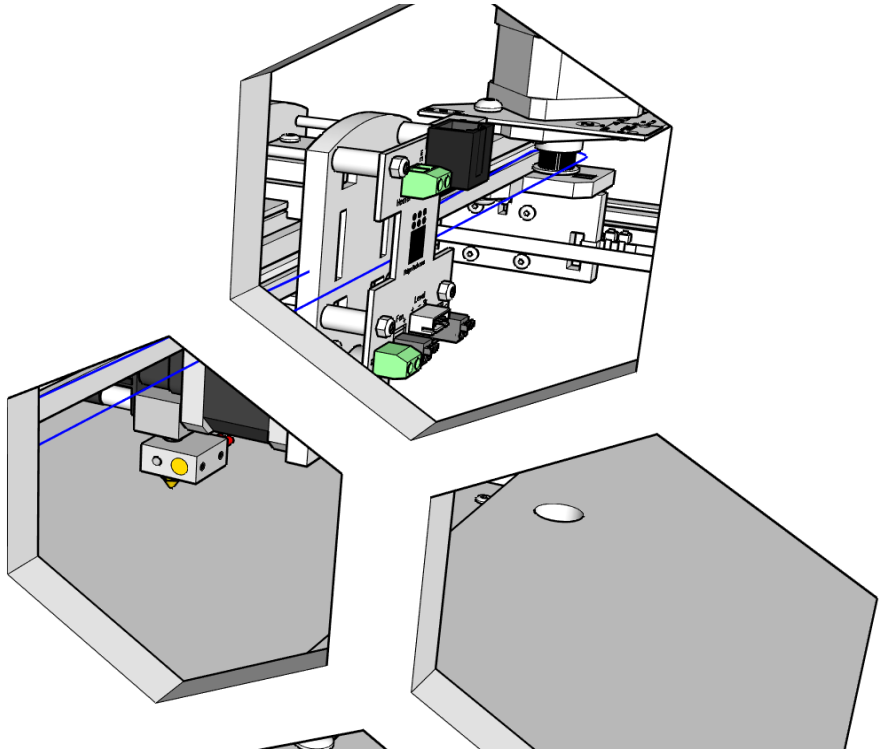
Mount BFP-SD03 to the linear block. Assemble BFP-S01, BFP-S02, BFP-SD04, and the carriage PCB using M3 hardware and spacers. The PCB is on the right hand side of the gantry.

Carriage

(none/single)

Step 3



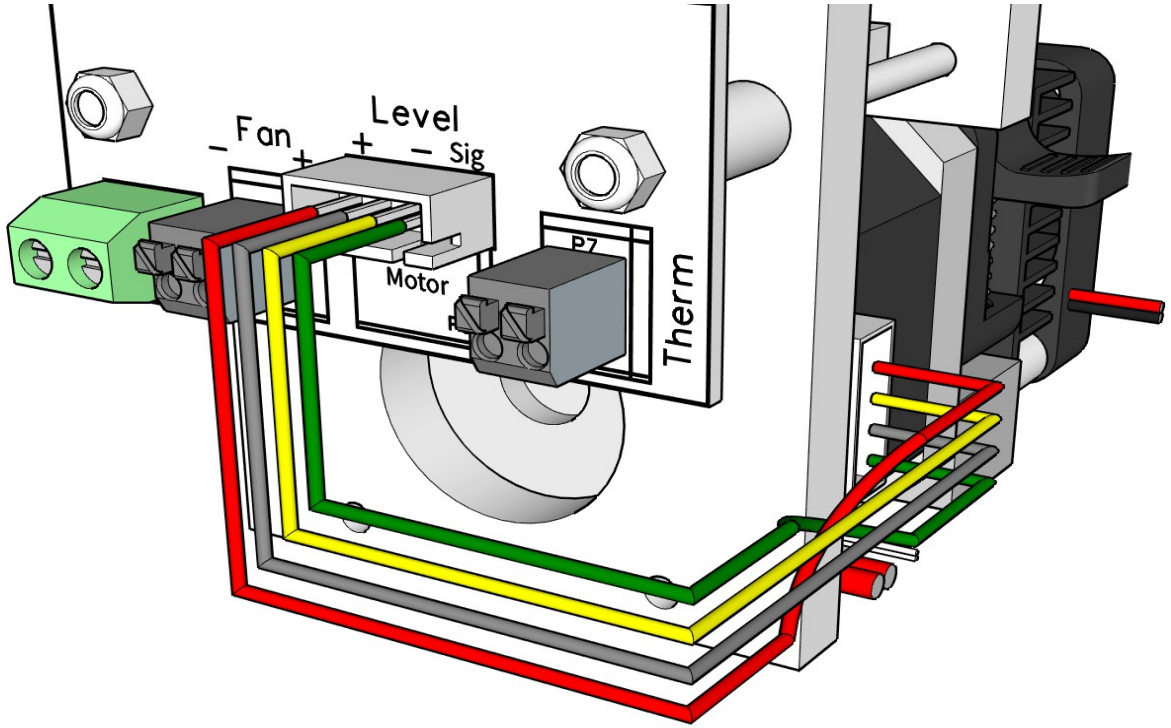


Tightly install the Y belt as we did earlier with the X belts. Attach the left side of the loop to the carriage with the right side of the loop behind the PCB. Adjust tension by moving the Y stepper assembly.

Carriage

(none/single)

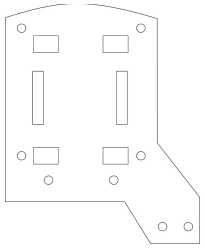
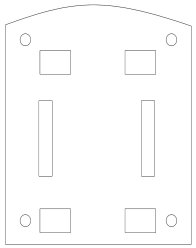
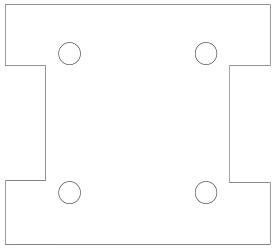
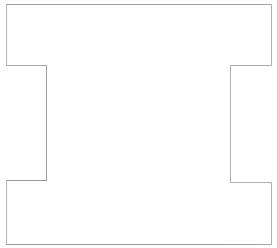
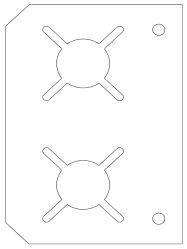
Step 4



Using a short stepper cable, plug the extruder stepper into the carriage PCB.

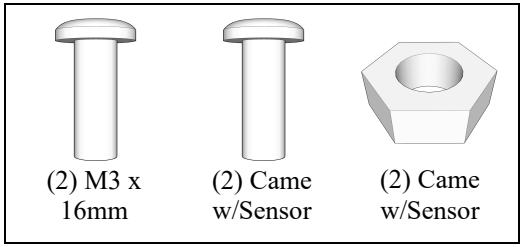
Dual Extruder

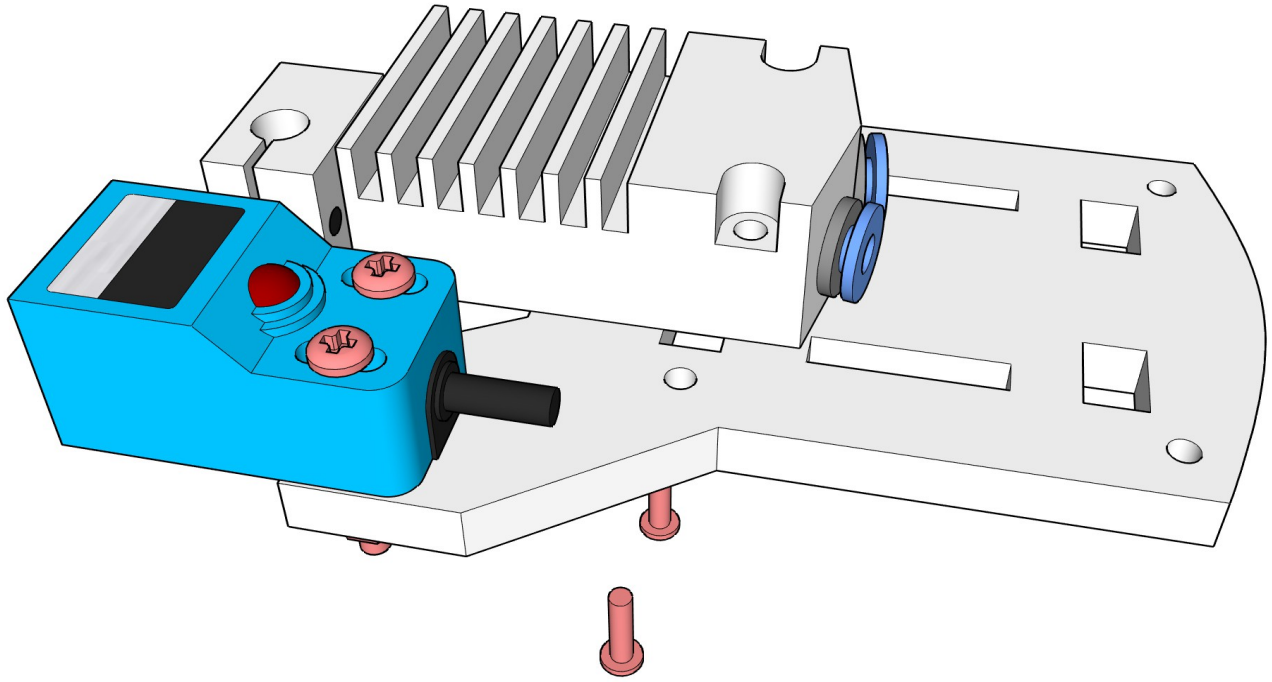
Additional ACM parts used in this section:

 BFP-D01	 BFP-D02	 BFP-SD03	 BFP-SD04
 BFP-D05			

Carriage (dual)

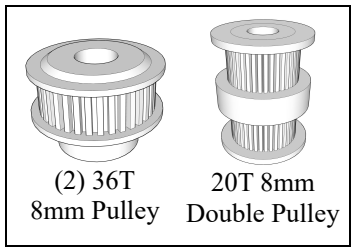
Step 1



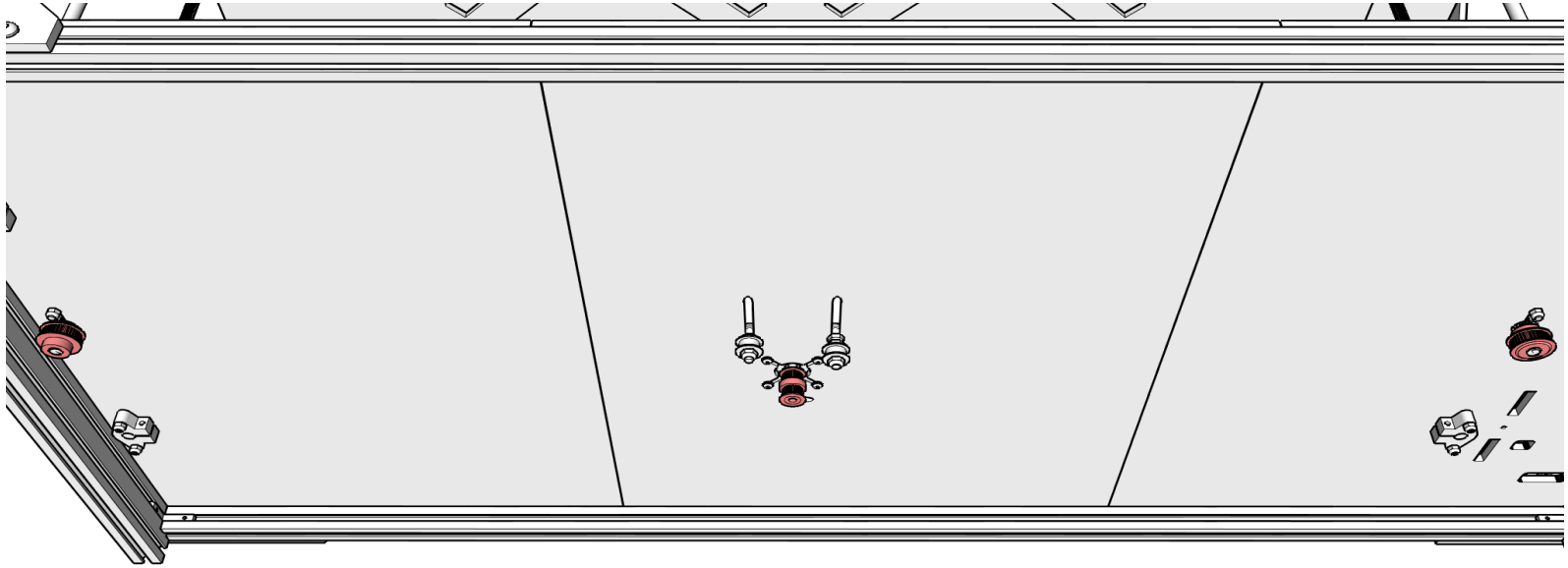


Mount the sensor in the center of the slots using the supplied hardware. Mount the dual hotend using the top set of holes that don't go through.

Z Belt Assembly



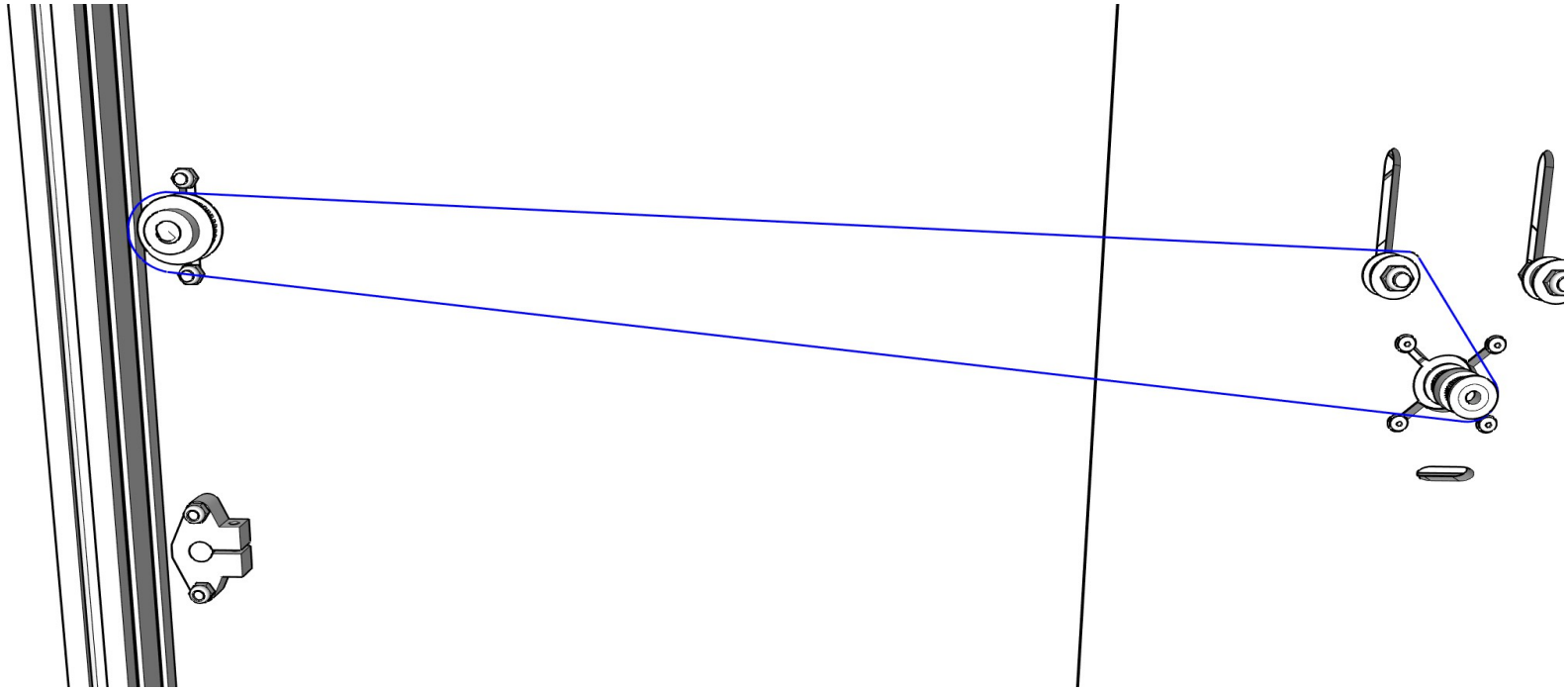
Step 1



Flip the printer onto it's back or prop it up and mount the pulleys as shown. Make sure the left one is upside-down. You may need to adjust the T8 lead screws.

Z Belt Assembly

Step 2



Route a belt loop as shown. Tighten by moving the idler. Repeat for other side. Adjust pulleys as needed.

Configuration

You are now ready to setup and configure your printer. The configuration guide can be found at the google drive link and will walk you though the steps of installing the PC software and the firmware. It will also cover configuration and setup of the printer.

Community ran resources (unofficial)

Facebook

Forum

Reddit

Thingiverse

Written and illustrated by Chris Sorrows.