Tools

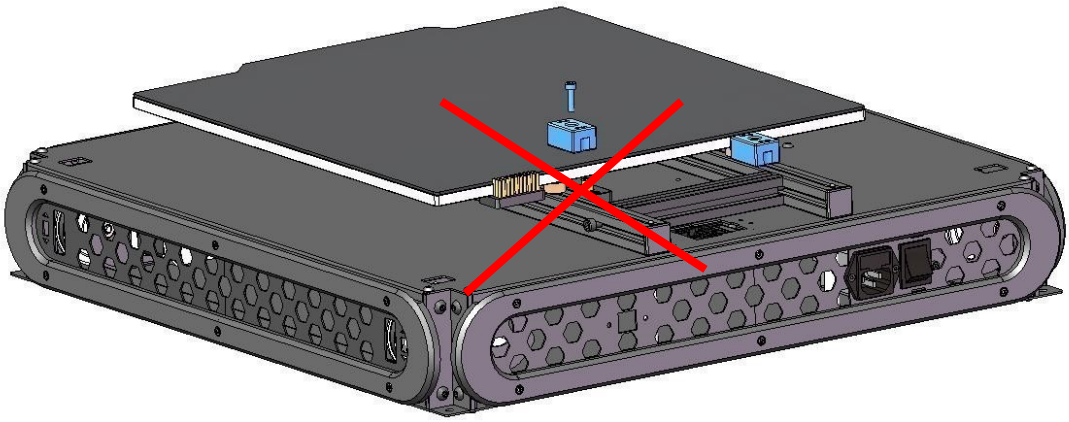
Besides the included toolkit, you will need

- Scissors
- 5.5mm wrench
- Grease Syringe
- Blue loctite

Assembly Manual

Read through this manual once before starting.
Gather tools and clear a space for assembly.

For TM3D customers, DO NOT remove the blocks like in the factory manual. They are used to help align the flex plate.



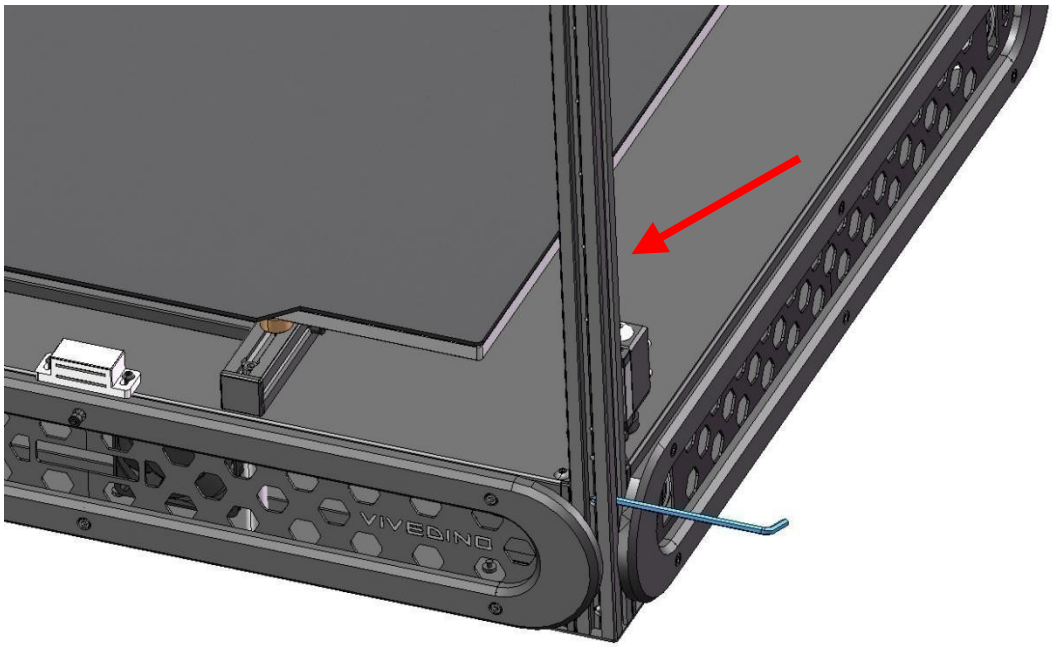
Using a 3mm hex key, remove the frame bolts. If screws do not have threadlocker already, apply blue loctite to the first 4 threads. Then, reinstall with the suggested gap of 2 ½ turns.

Turn the screw out 2.5mm about 2 ½ turns.

NOTE- there are exposed screws on the bottom side of the base that can scratch. Do not slide around until the feet are installed.

NOTE- there are exposed screws on the bottom side of the base that can scratch. Do not slide around until the feet are installed.

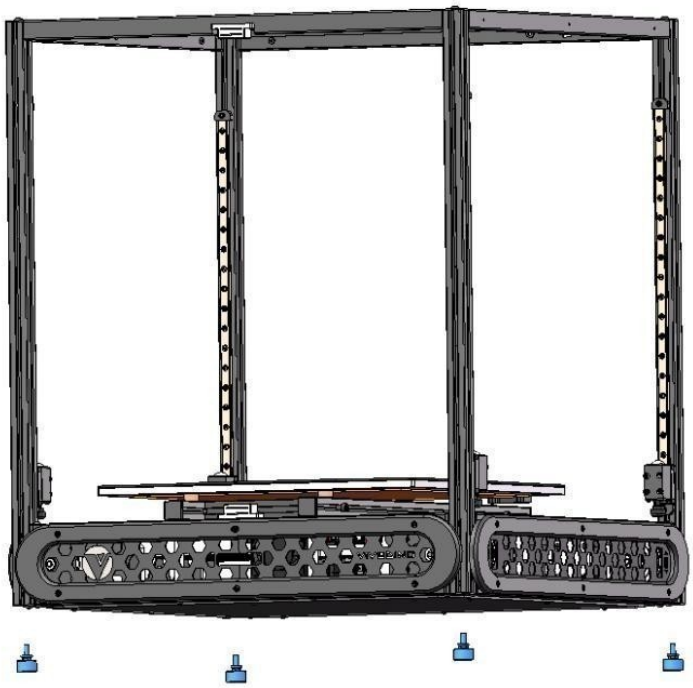
Install each Z axis extrusion, making sure the ball is facing up. Be sure the extrusions are flush against the sheetmetal beneath the print bed. Tighten all of the screws (all 4 corners) until the extrusions are held in place (just past loose) then, fully tighten each screw.



Repeat, tightening all four Z axis extrusions in place.

NOTE- there are exposed screws on the bottom side of the base that can scratch. Do not slide around until the feet are installed.

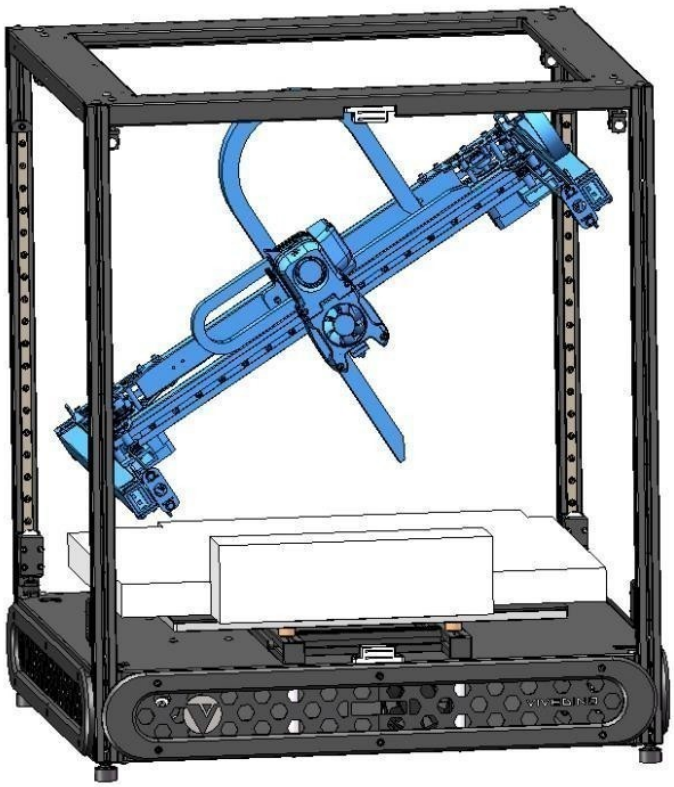
Mount the feet to the bottom of the printer. They are adjustable so you can level the machine in its final location.



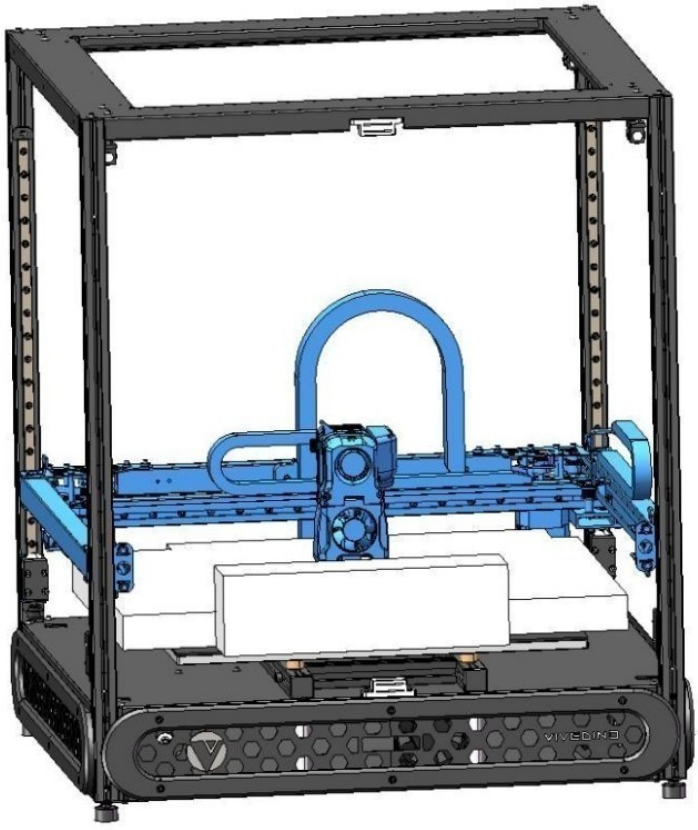
Put foam on print plate from the box. Pictured with top frame attached,
but we suggest installing the gantry before the top frame to make it easier

First, inspect the printhead to make sure no cables are hanging below the nozzle

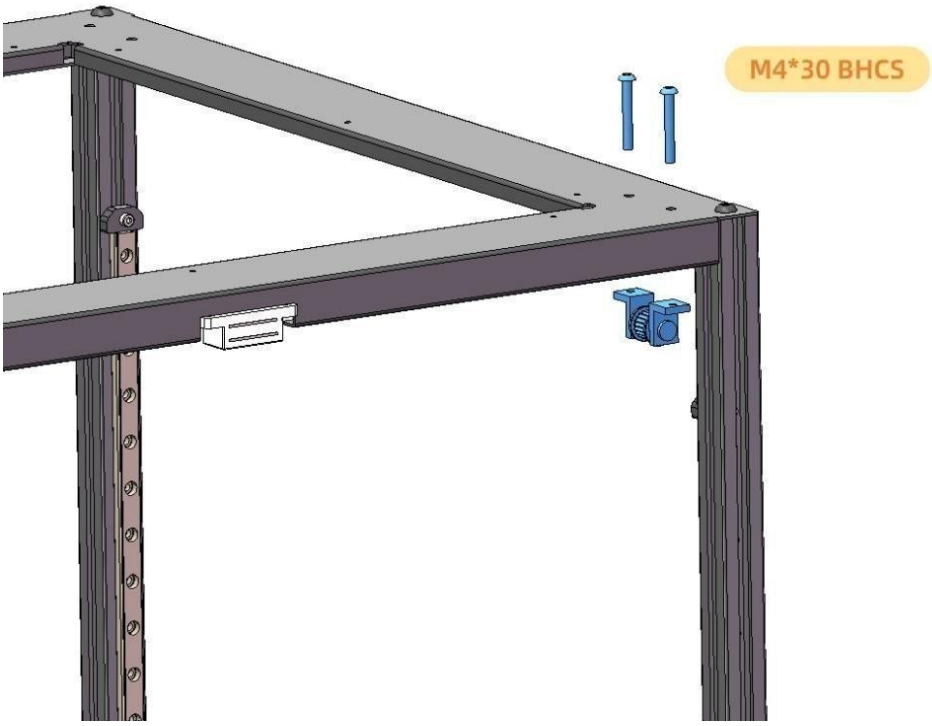
Tilt the gantry into the machine (again, easier with the top off)



Place the gantry on foam.

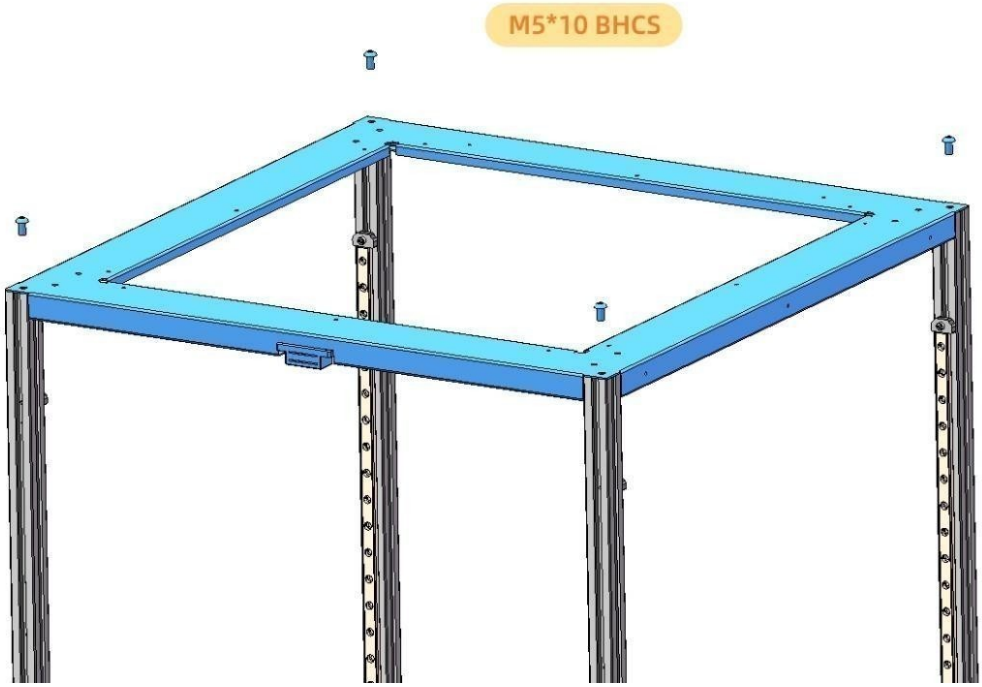


Mount the Z Axis idler pulleys loosely (4 total, 1 in each corner - pre-assemble off the printer on a flat surface)
Screw the bolts in just enough to hold the brackets, the bolt should be flush with the hole in the bracket.

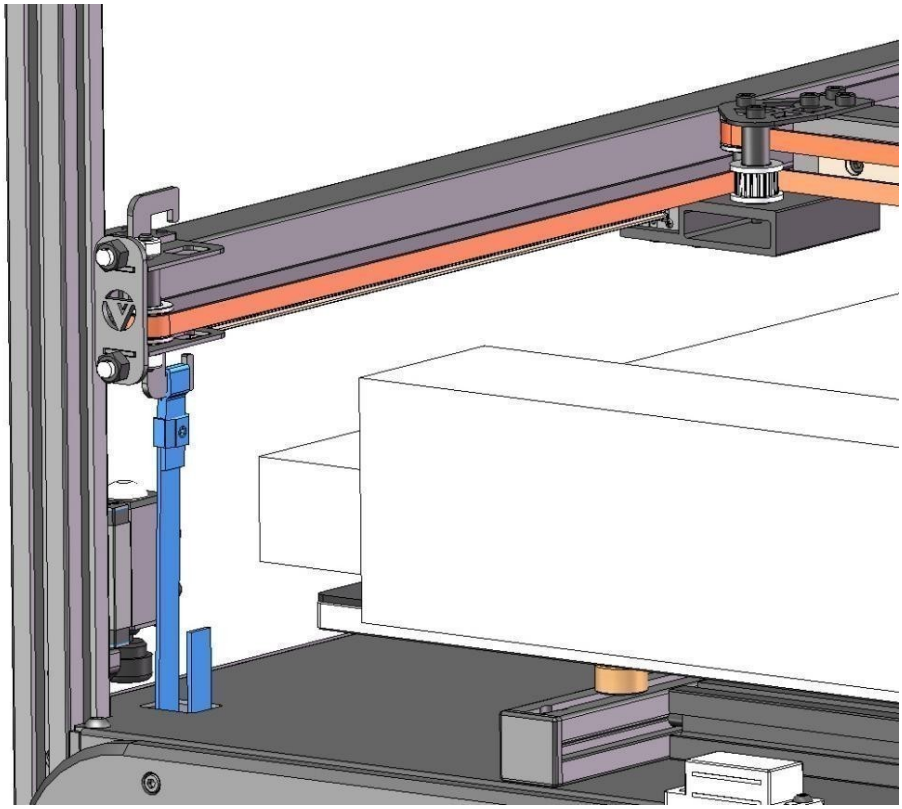


All 4 mounted shown below

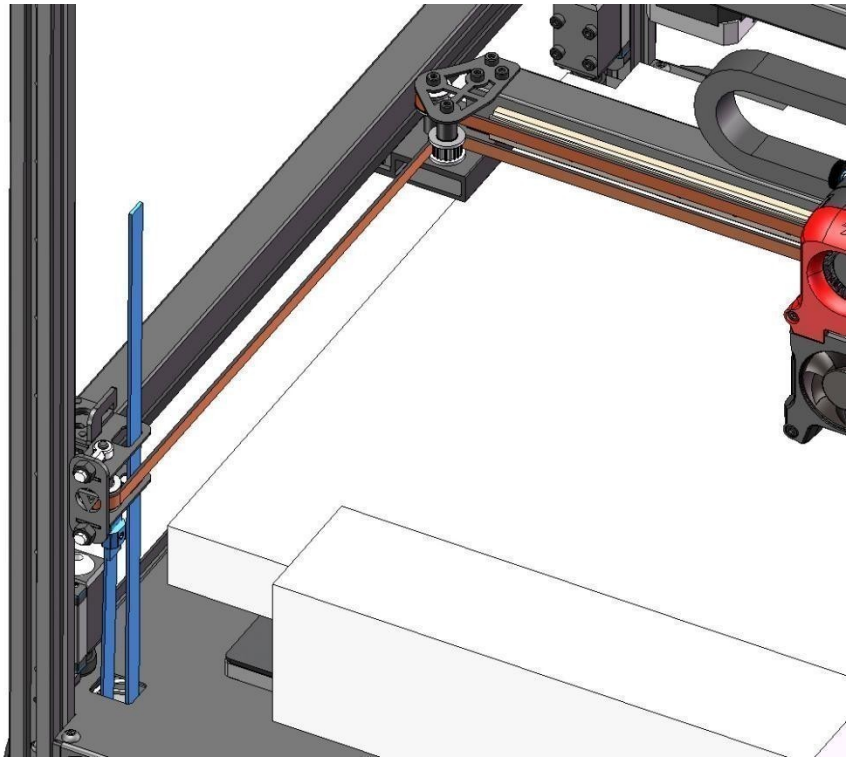
Mount the top sheet metal plate.



Install Z axis belt to the hook below (buckles are pre-installed on LF.RF,LR)
Use the following as reference

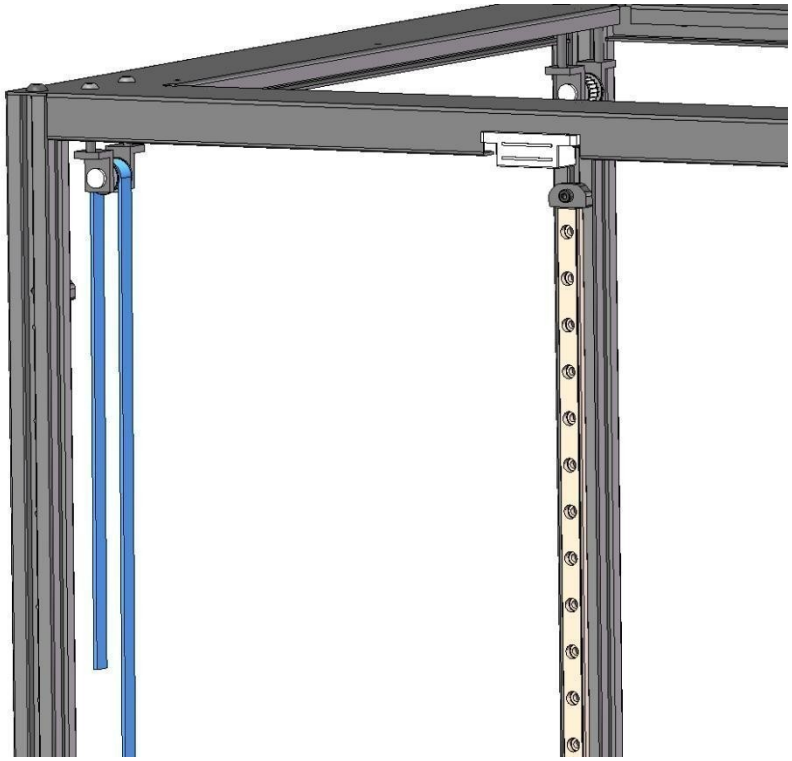


Pass the other end of belt through the holes in the sheet metal.

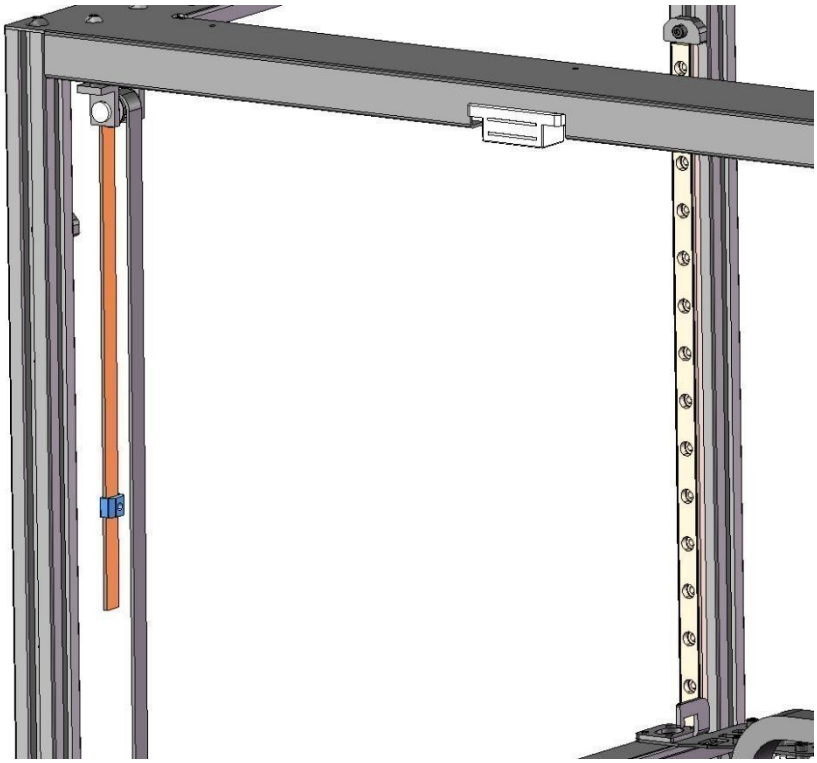


Pass belt through the top idle pulley.

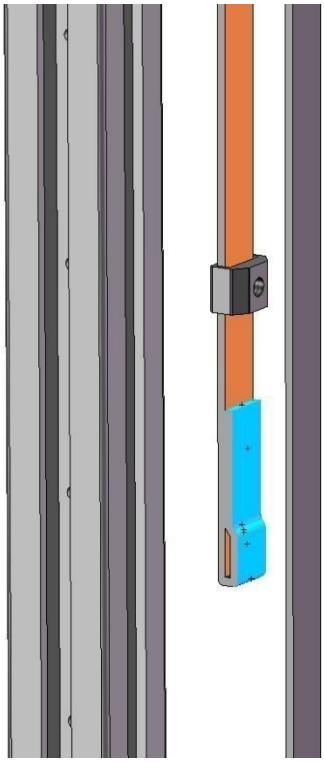
Left Front



Slip a buckle onto the belt.

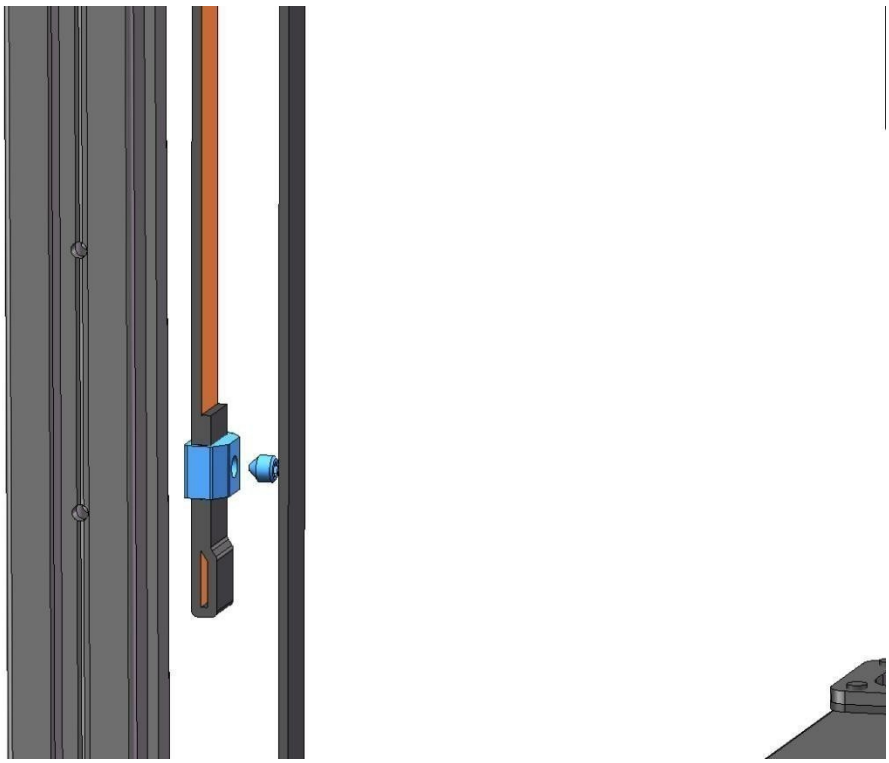


Fold the belt as shown.

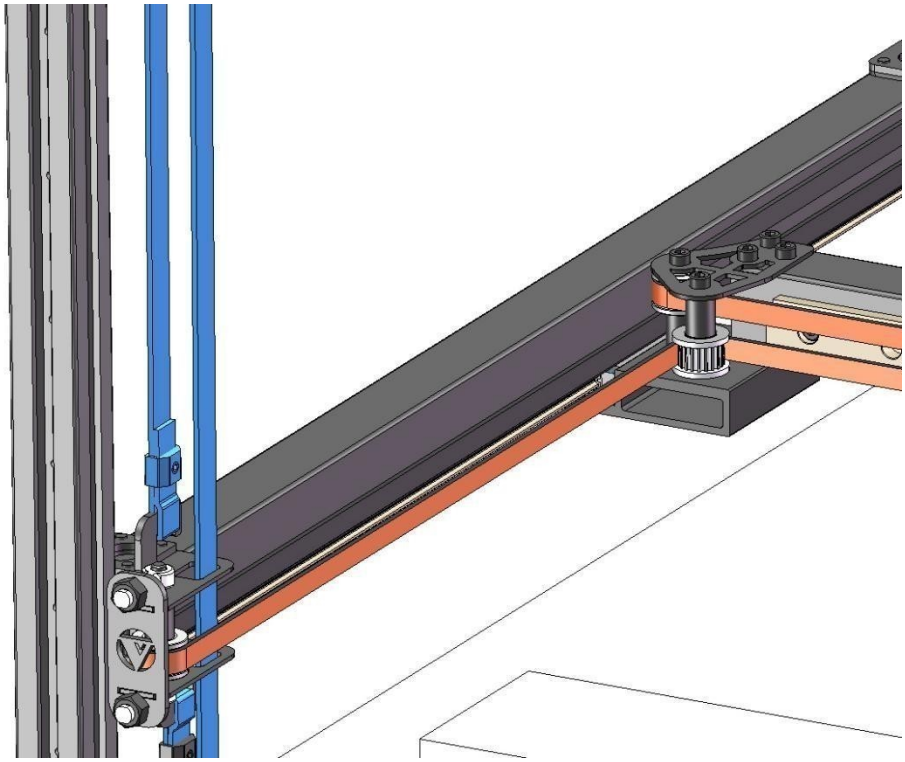


Ensure the cabling at the back right corner passes behind the belt. Back Right is shown below.

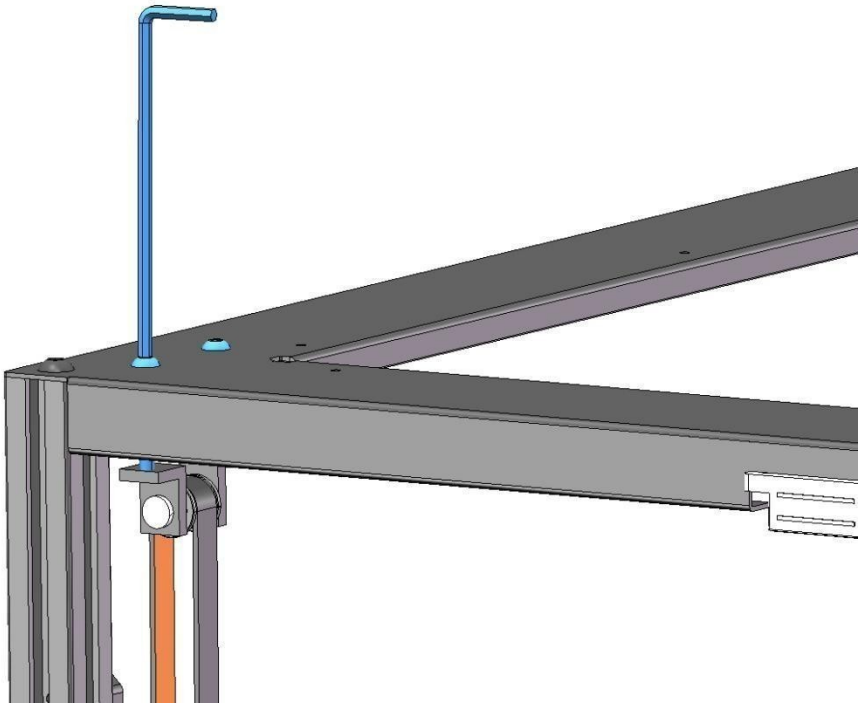
Slip the buckle onto belt over folded flap and tighten it with a M3 set screw.



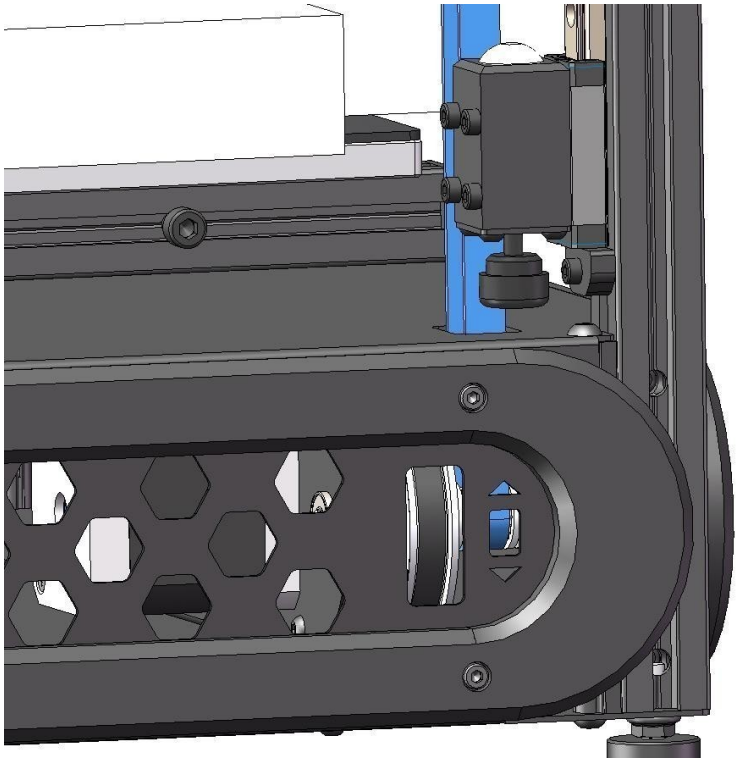
Install the belt to the hook below.



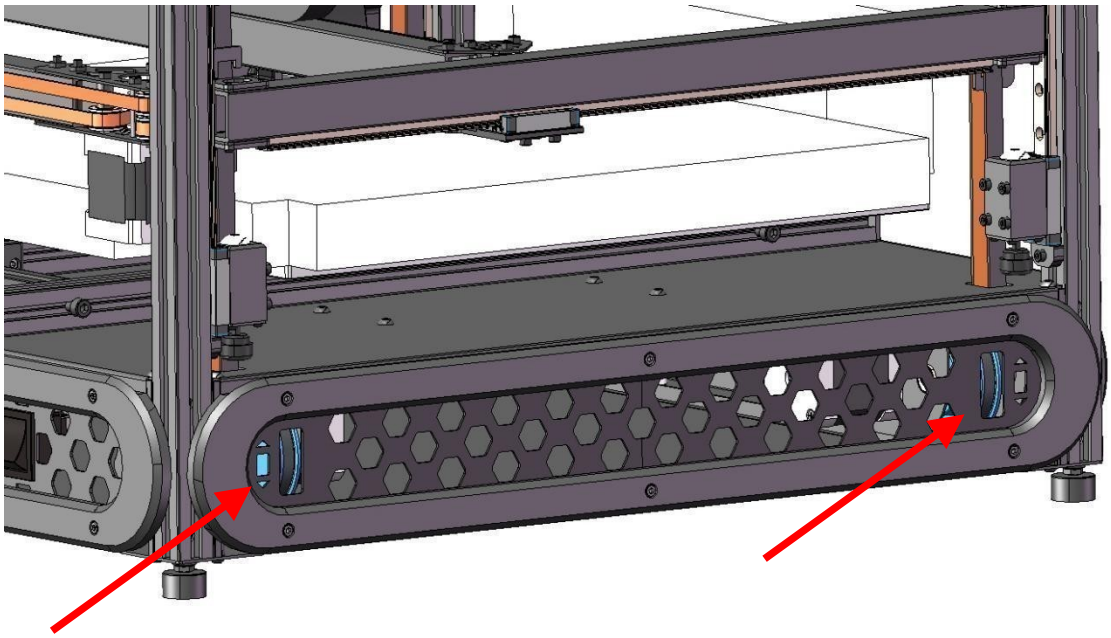
Pre-tension the belts (will set tension later) with the screws on the top.



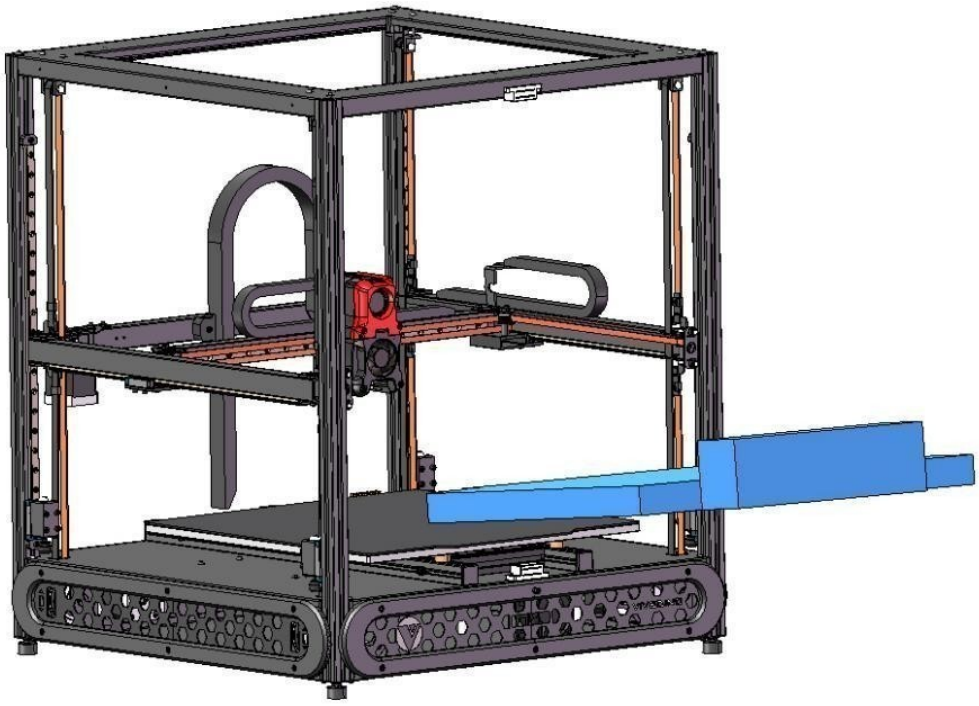
Note: viewing from the side bottom, the belt needs to be in the tooth groove of pulley.



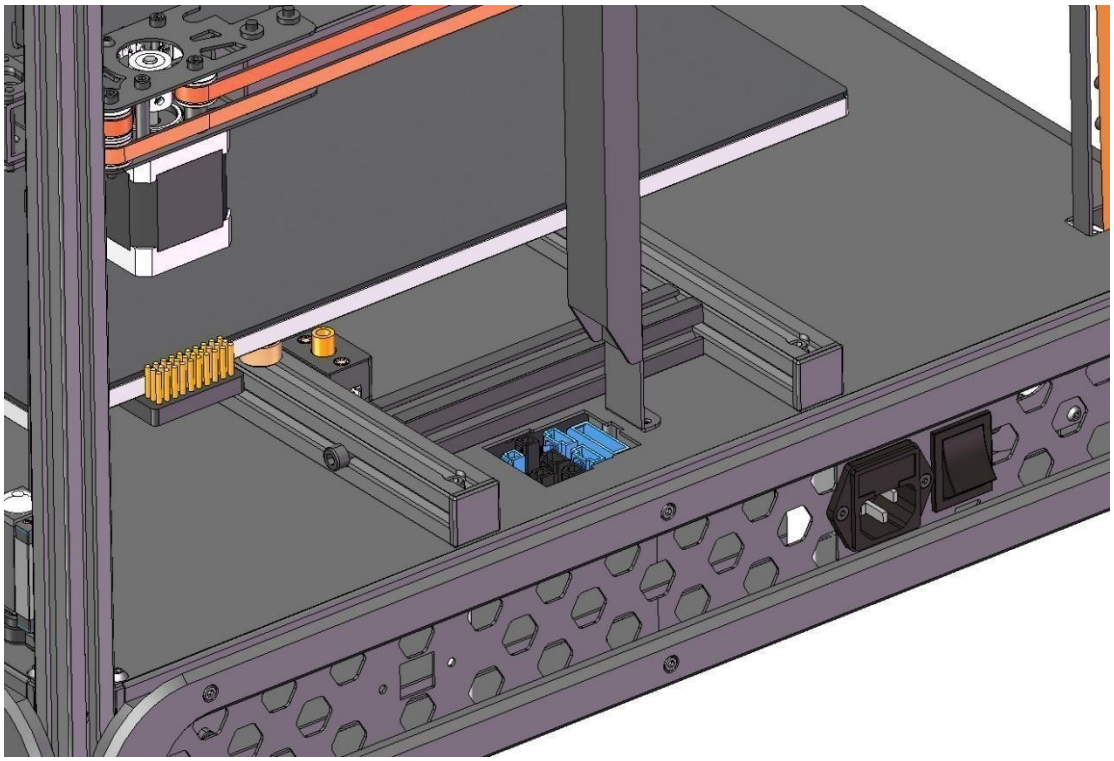
Turn the four 80T pulleys by hand from the side to raise the gantry to a certain height. Use the included ruler and adjust 4 corners within 1mm.



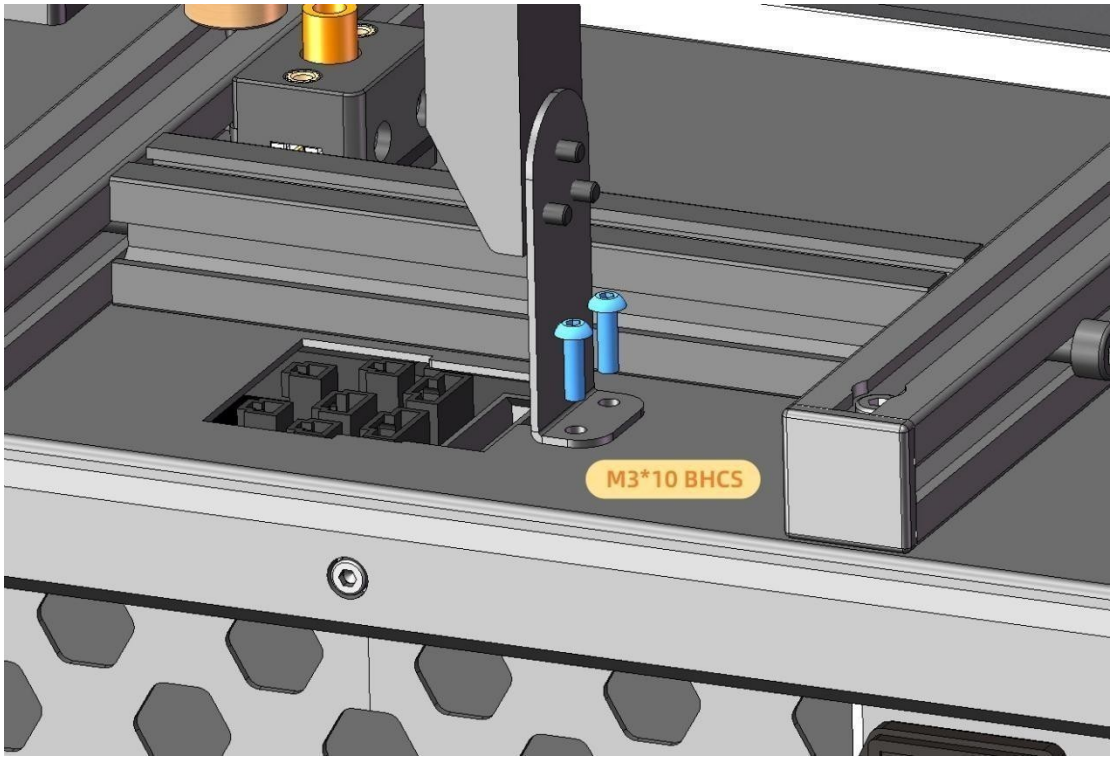
Remove the foam.



Plug the cables of drag chain into below socket according to label aside.

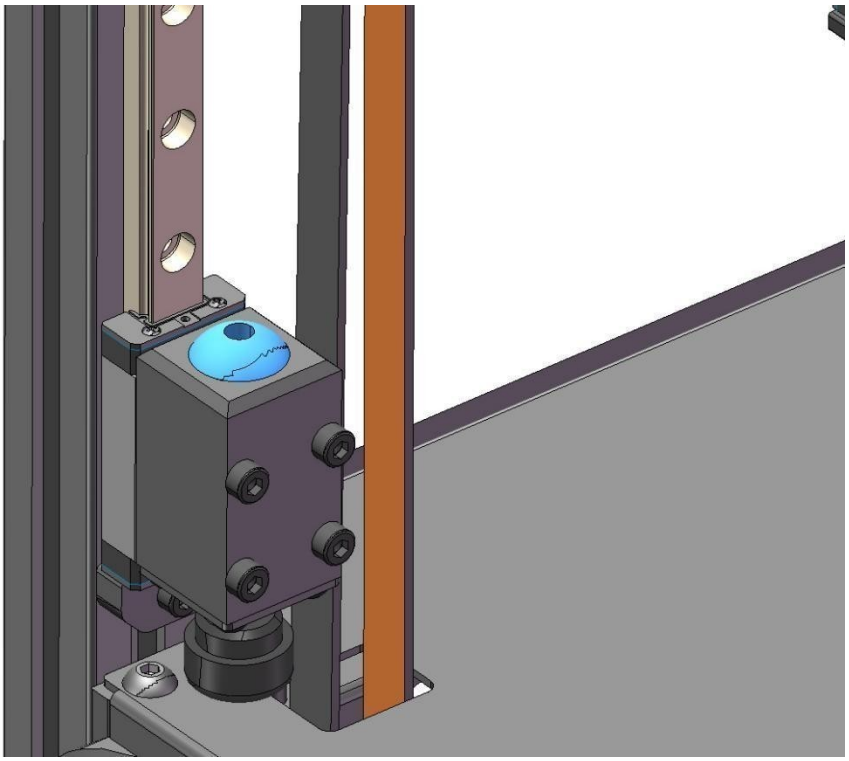


Fix the sheet metal for Z axis drag chain using a M2 ball end hex.

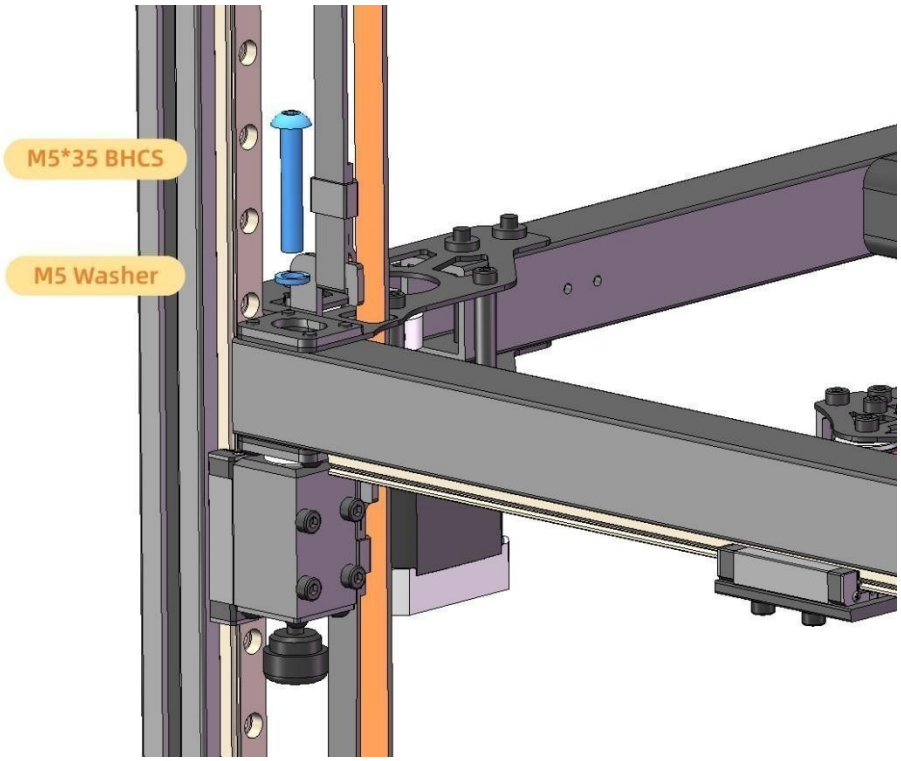


Rotate 80T pulleys to make four corners of gantry be in same height.
(Note: the height error between four corners should not exceed 1mm, please measure height by ruler and recheck the height error repeatedly)

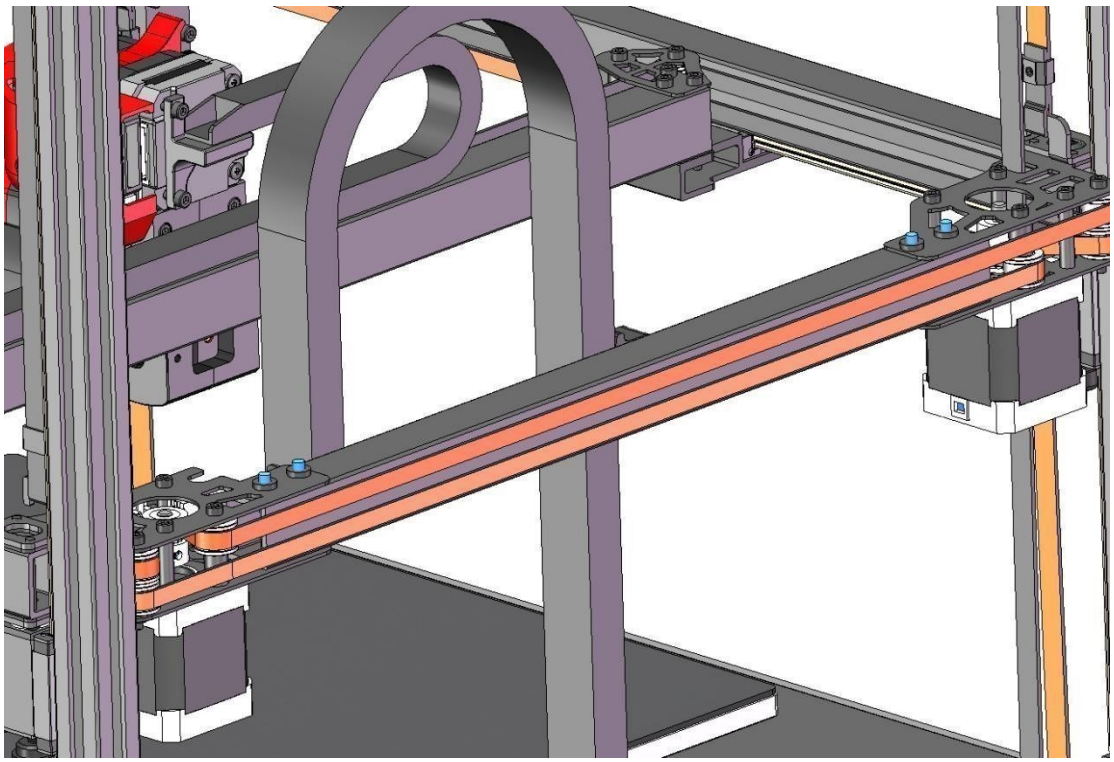
Rotate the screw holes of four movable hinges to the center.



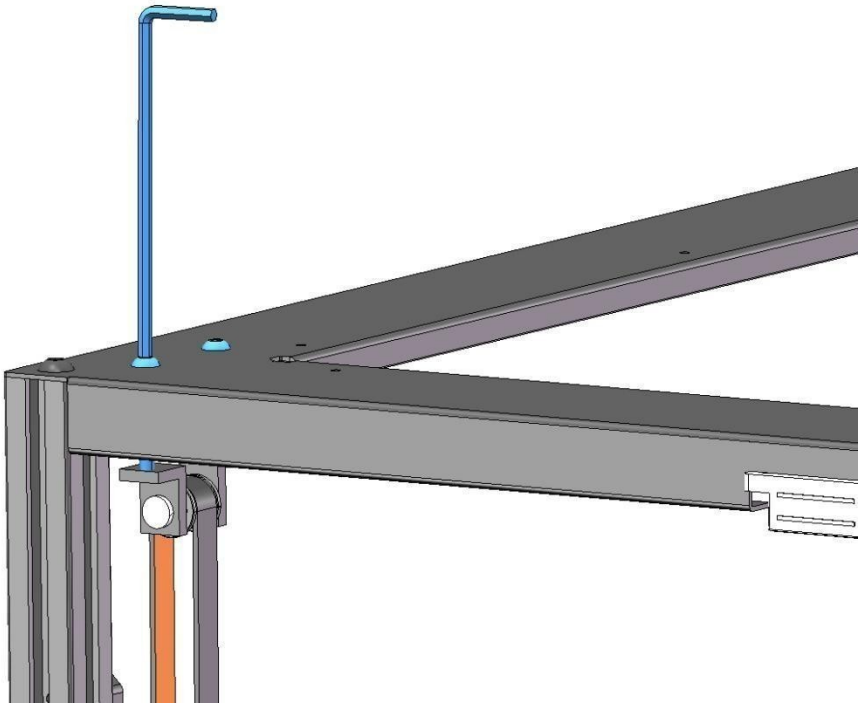
Insert M5 screw and spring washer, the screw should be aligned with the threaded hole of movable hinge. Rotate the screw a little to prevent the movable hinge from falling off, but don't tighten the screw completely in this step. Install all four movable hinges in the same way.



If it’s difficult to align the screws with the threaded holes on movable hinges, please loosen four M4 screws at the back of gantry for adjustment. Tighten back these M4 screws until all four holes are aligned.

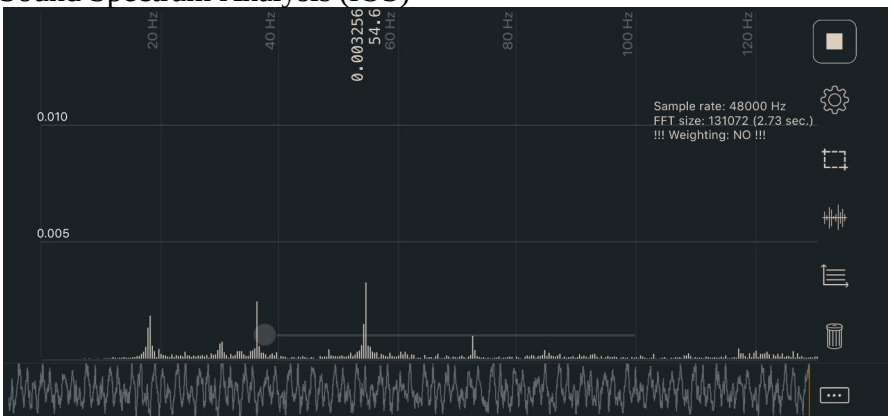


Now it is time to tighten the Z axis belts. Adjust the belts to 140Hz as described below. More info at Voron / BELT TENSION INFO



Apps
iOS: Sound Spectrum Analysis
Android: Spectroid
Both: Gates Carbon Drive (use the "motorcycle" option)
This app shows a single frequency rather than a graph. It's more difficult to get a good reading, but easier to interpret the result.

Sound Spectrum Analysis (iOS)



A good starting point is 140hz. You will follow a similar process.

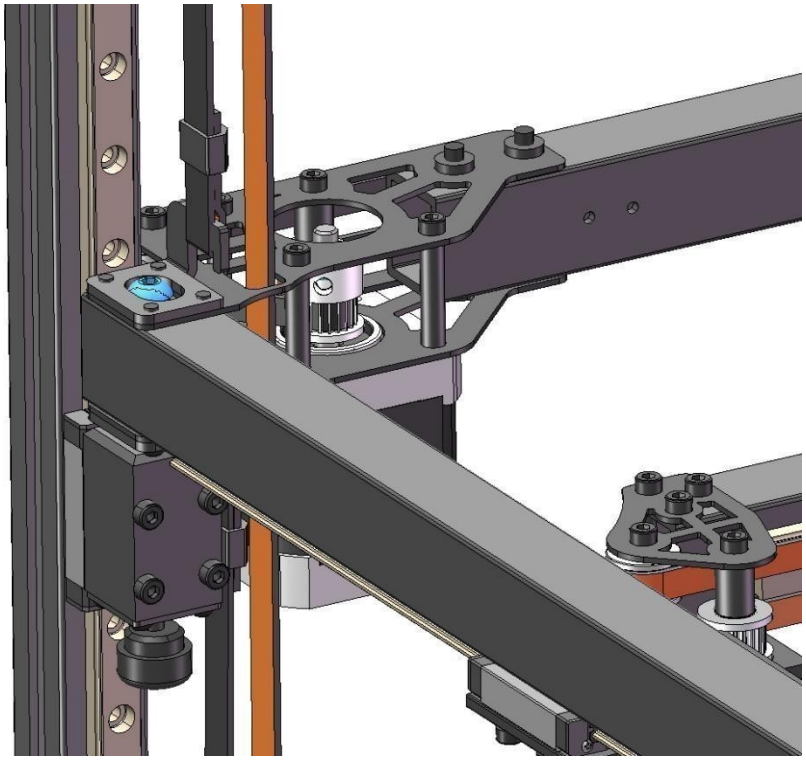
- Move the gantry upwards until the fixed side of the belt is 150mm from the Z idler centers.
- Pluck, measure, and adjust, same as above. Remember to pluck the shorter length!
- Move your gantry down at least a few centimeters and then back up again. Re-check your tensions.

While tightening the belts, check they sit correctly in the upper and lower pulleys.

This is also the time to check the A/B belt tensions as described in the Voron link above. A number of users have reported that the belts on their machines had a much higher tension than recommended. If the machine came from TM3D with a Full Service Package, this will already have been checked. During shipping, assembly, it's possible components to shift. It's a good idea to verify.

Tighten the 4 thumb screws to secure the movable hinges. From the top, this is CCW

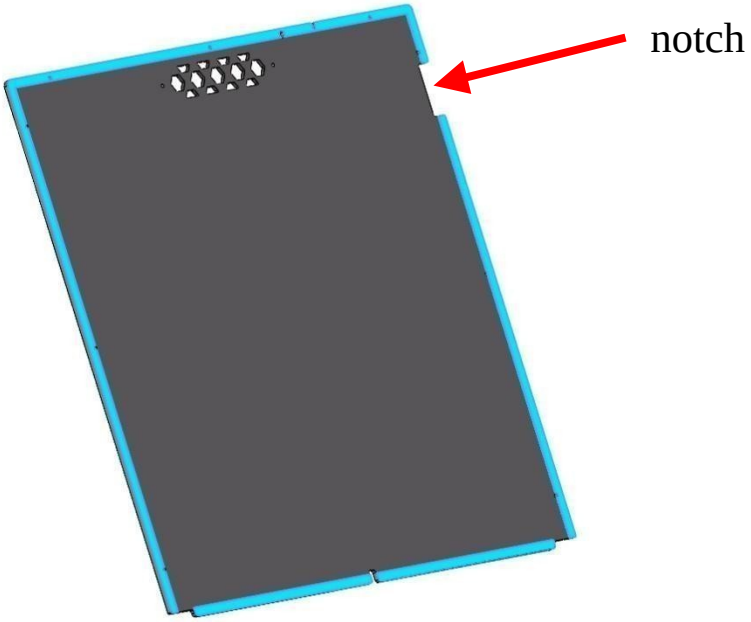
Tighten the four M5 screws in a cross pattern with hex wrench.



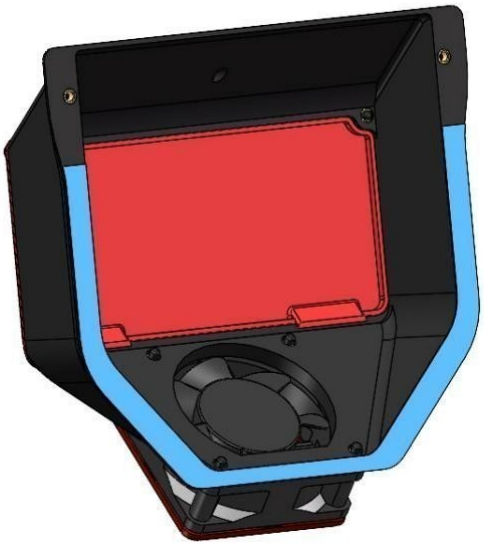
Loosen the thumb screws to release the movable hinges **If the movable hinges are not released, the leveling effect of the gantry will be affected.**

Apply 1mm thick foam tape onto the inner side of the black rear panel as shown leave the outside protective film on.

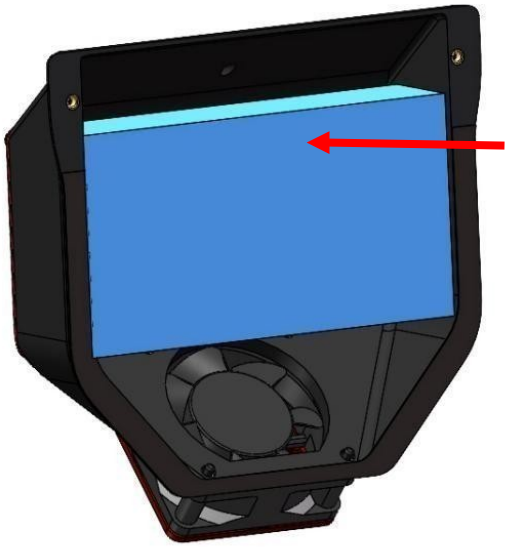
NOTE: The back panel is not reversible. The notch for the filament spool shows the orientation.



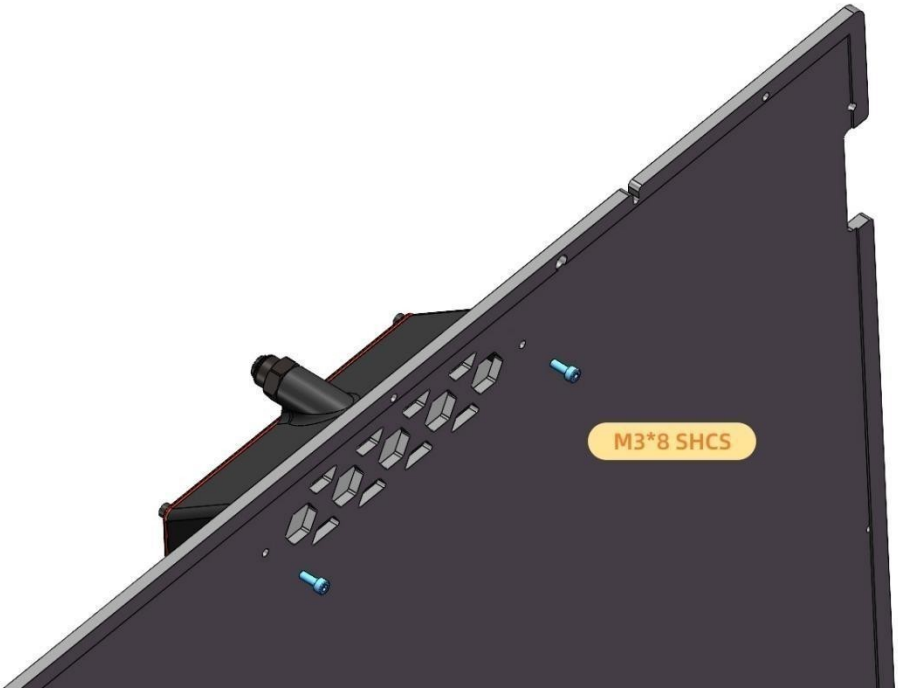
Glue VHB tape to the air filter as shown.



Put the activated carbon cotton into the air filter.



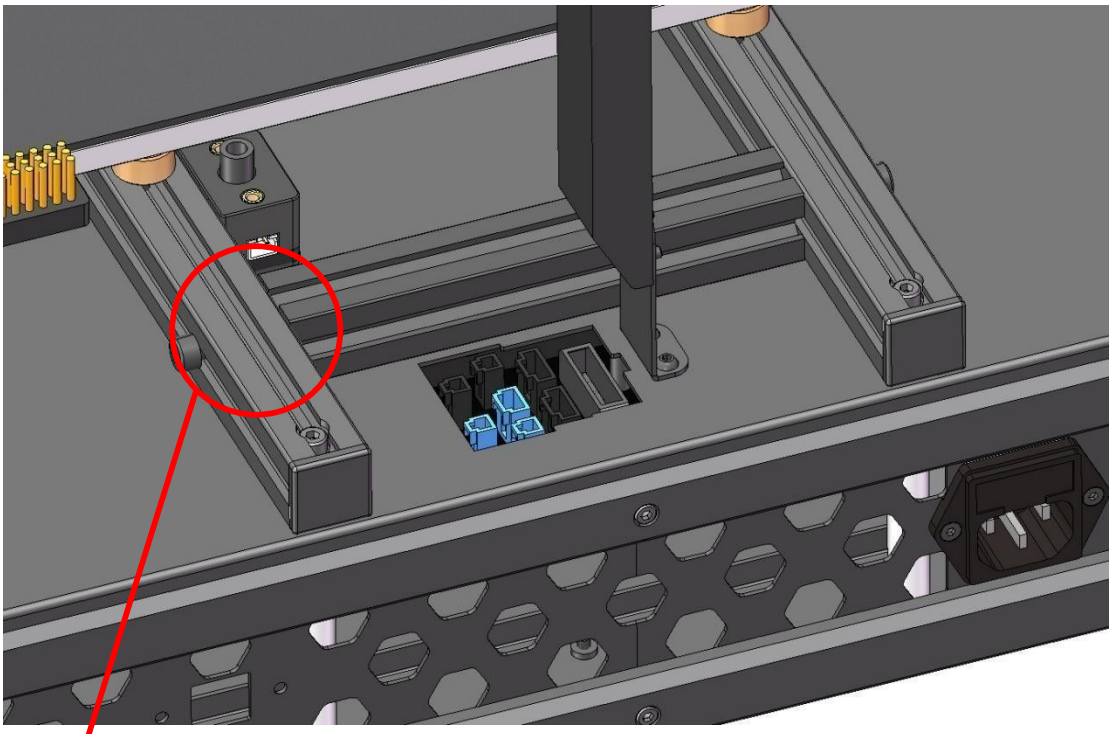
Attach air filter to the outside of the black real panel.



Install the screws first, holding the area with the VHB tape away from the panel, then press the VHB to the back panel. This will help in positioning the air filter.

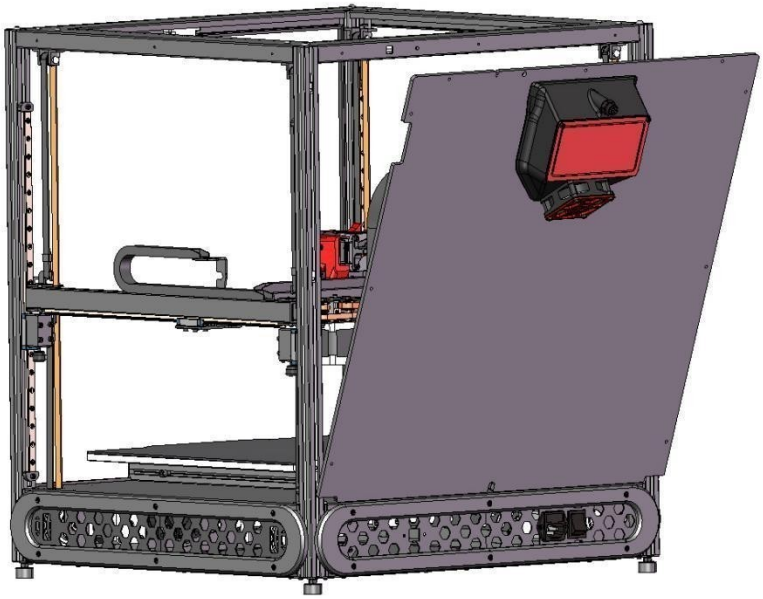
Put 6pcs M3 T-nuts in below positions.

Plug the cables for air filter, LED light and filament run-out sensor. Use the yellow label on the base for reference

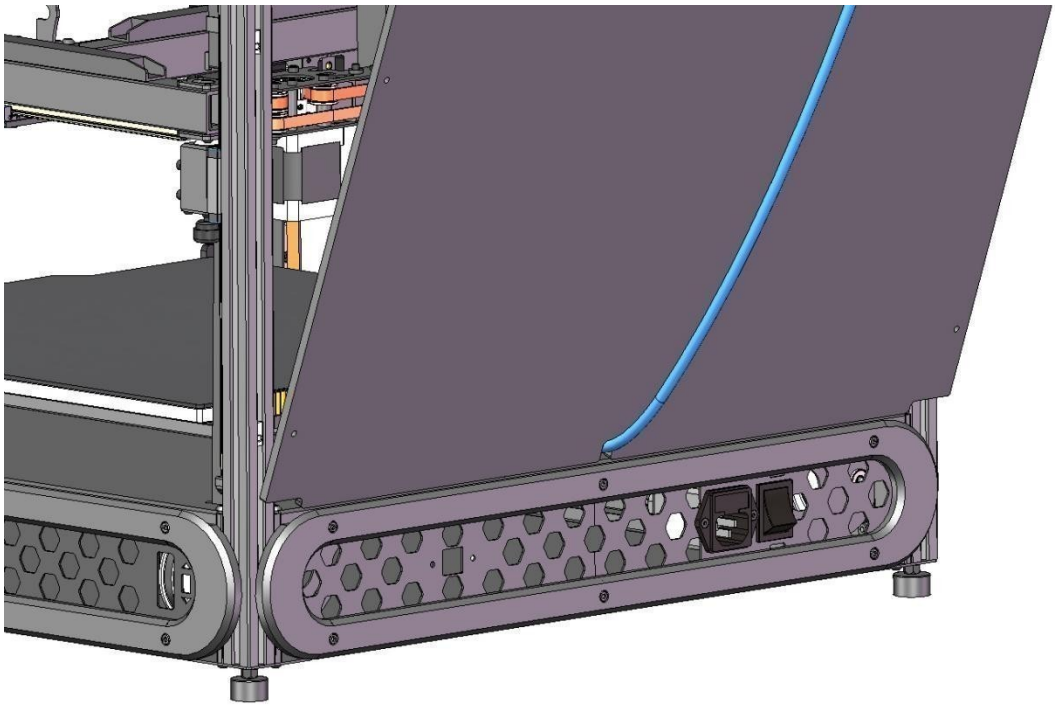


Chamber thermistor location

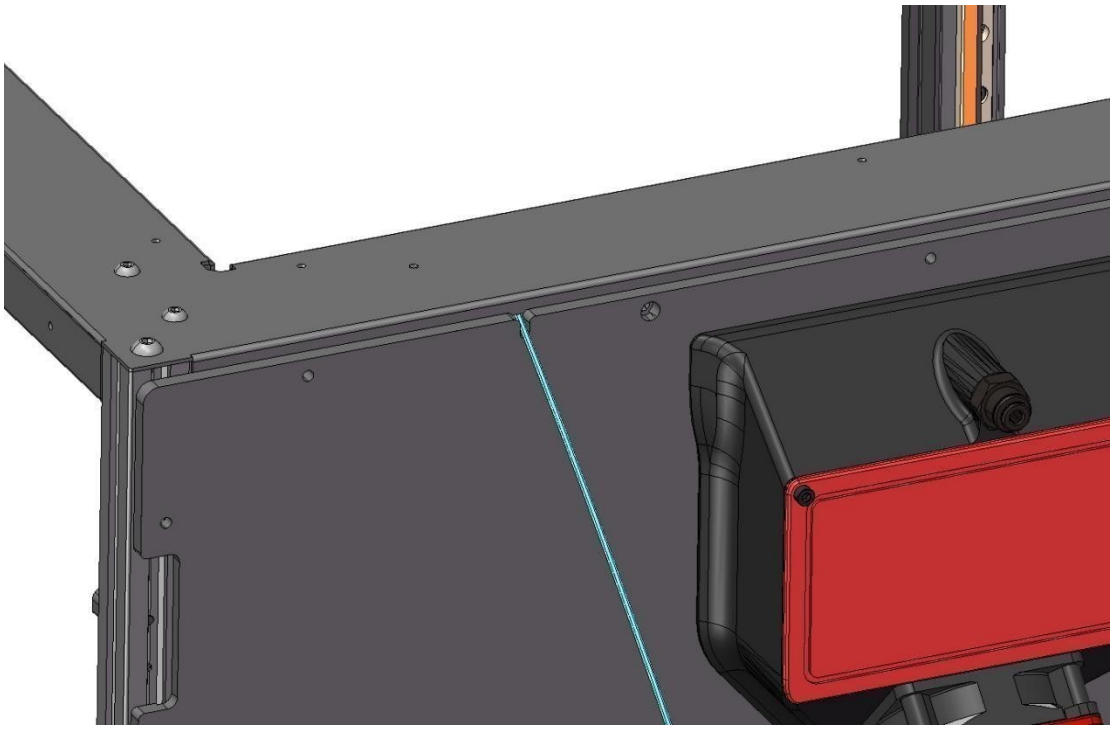
Place the rear panel on the bottom frame – it will slot into the skirt - watching for camera and led cables shown in next step



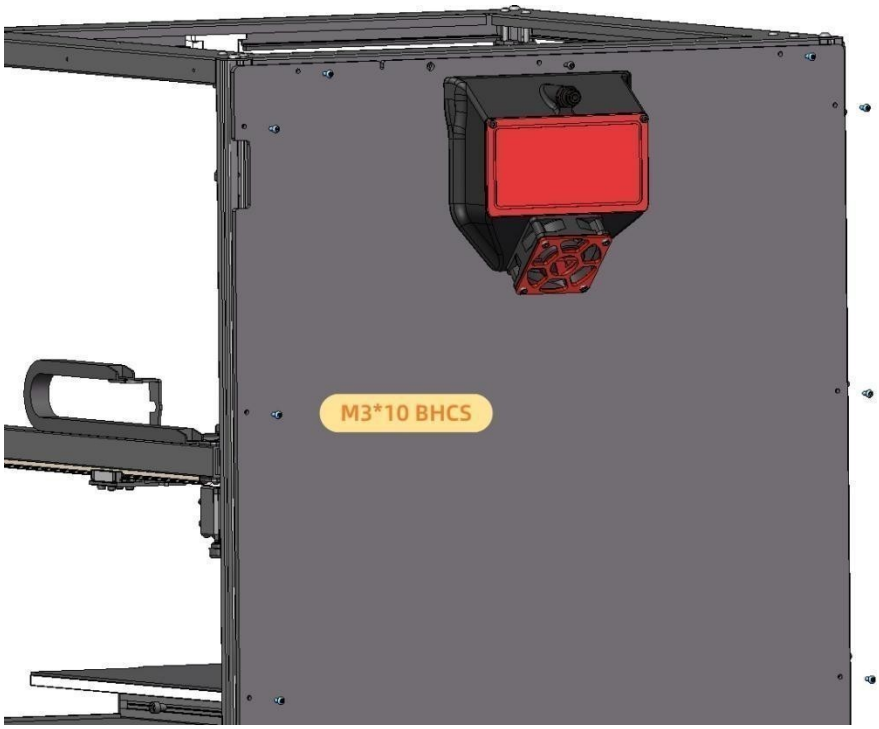
Pass cables through the bottom slot of Rear panel.



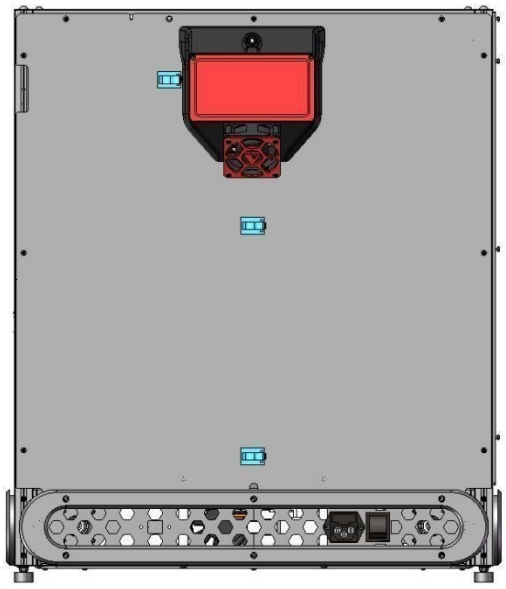
Close the rear panel and pass the LED (and webcam if installed) cables through the top slot.



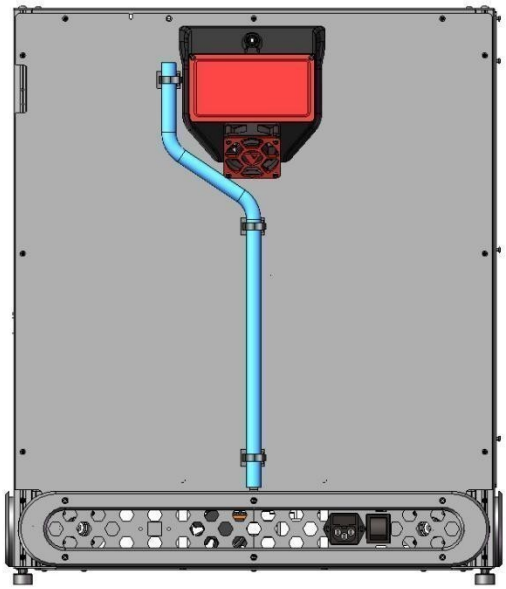
Mount the rear panel with 9 x M3 *10 BHCS screws.



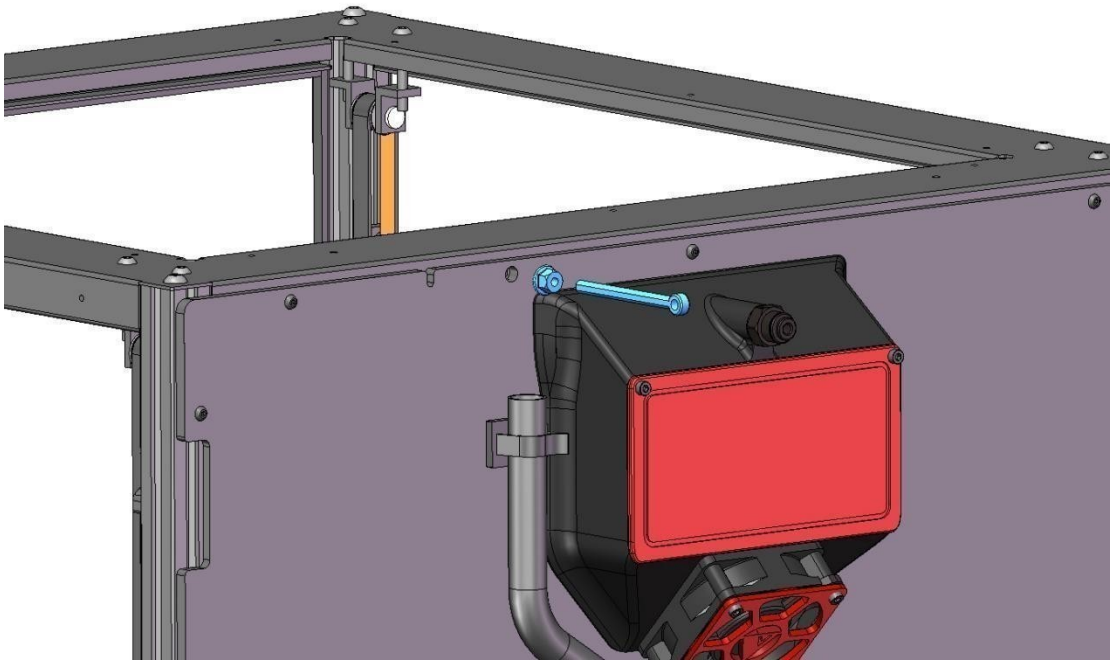
Use 3 cable ties to attach the cable bundle to the positions shown below.



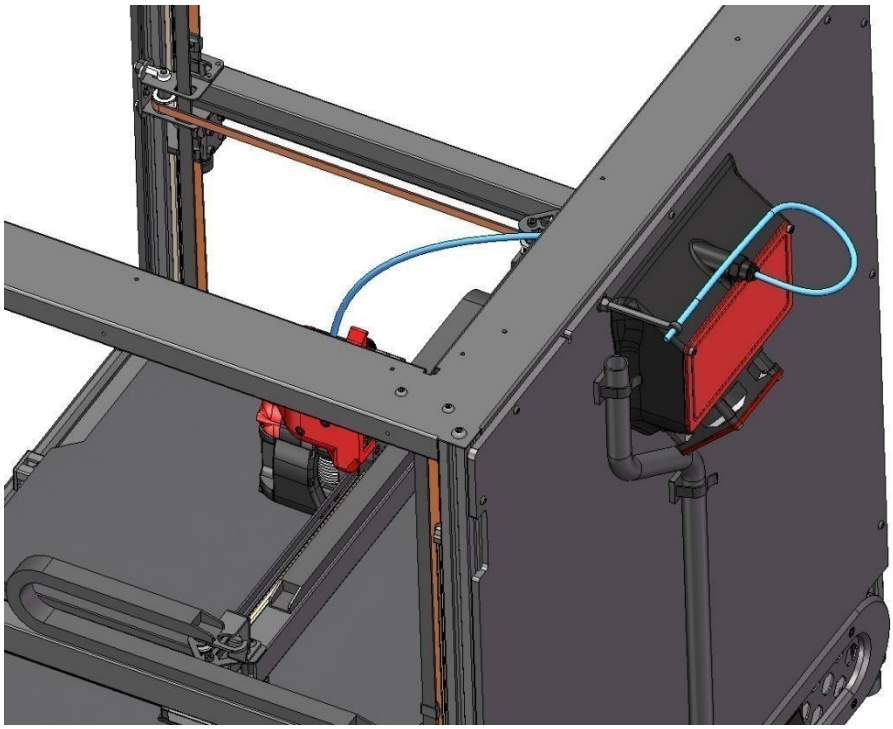
Put the cables running from the bottom up into the sheath and fix the buckles.



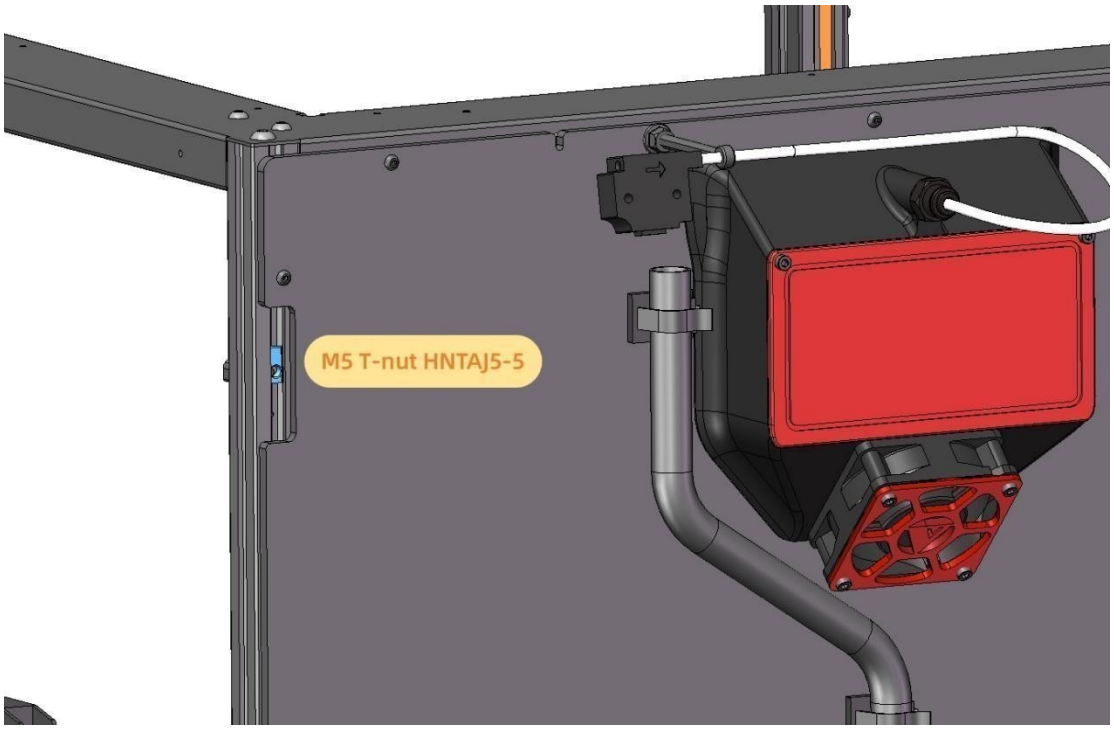
Install the screw bracket for PTFE tube support. Review TM3D guide for Filament Sensor update



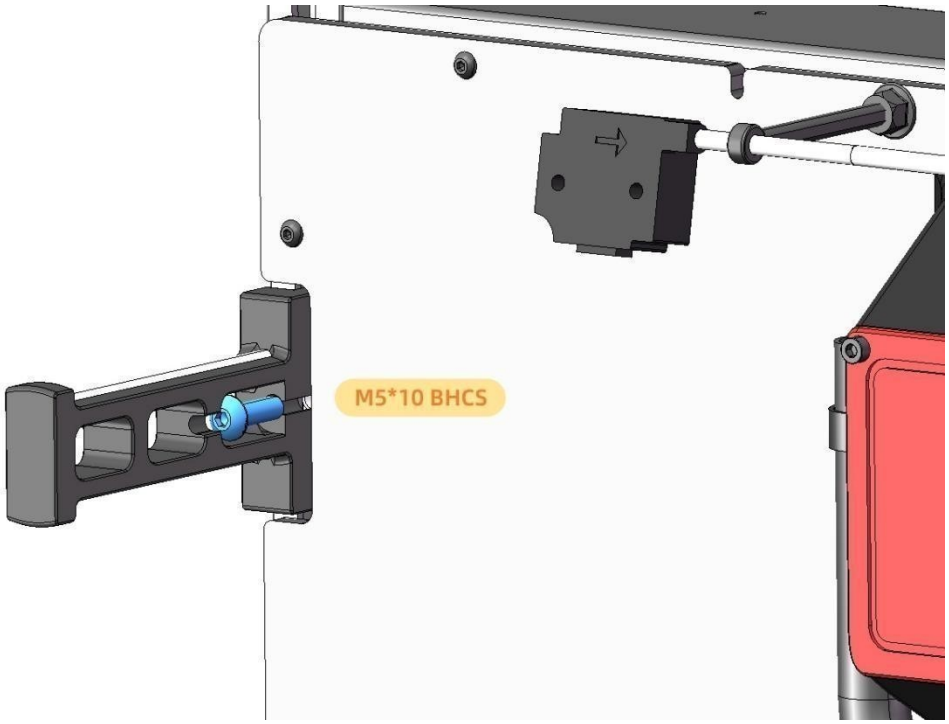
Move the extruder to the front left corner and install the PTFE tube.
(Note: please reserve enough length of PTFE tube inside chamber, or else, the extruder will be pulled up during print)



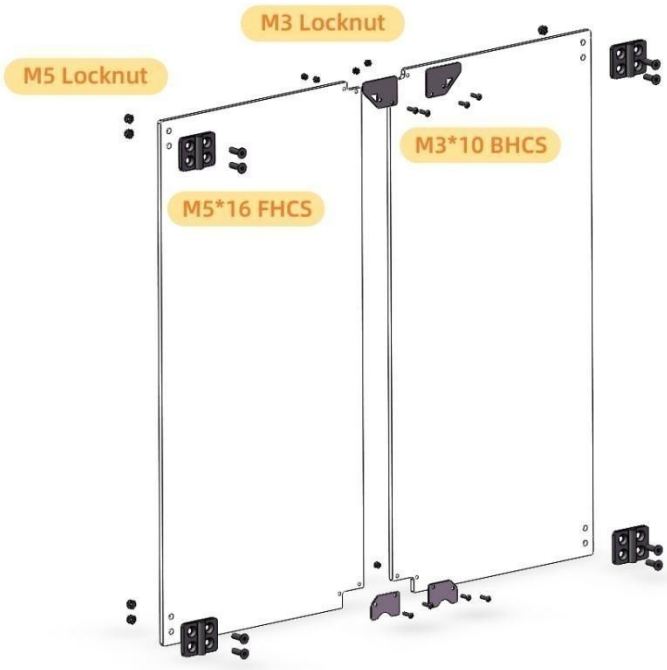
Put a M5 T-nut in below position. Review TM3D guide for Filament Sensor update



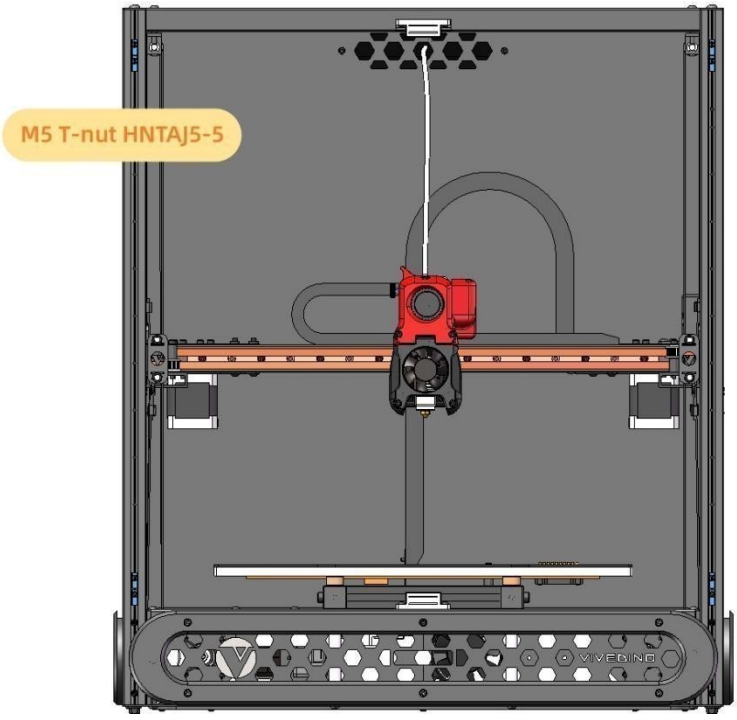
Install the filament spool holder.



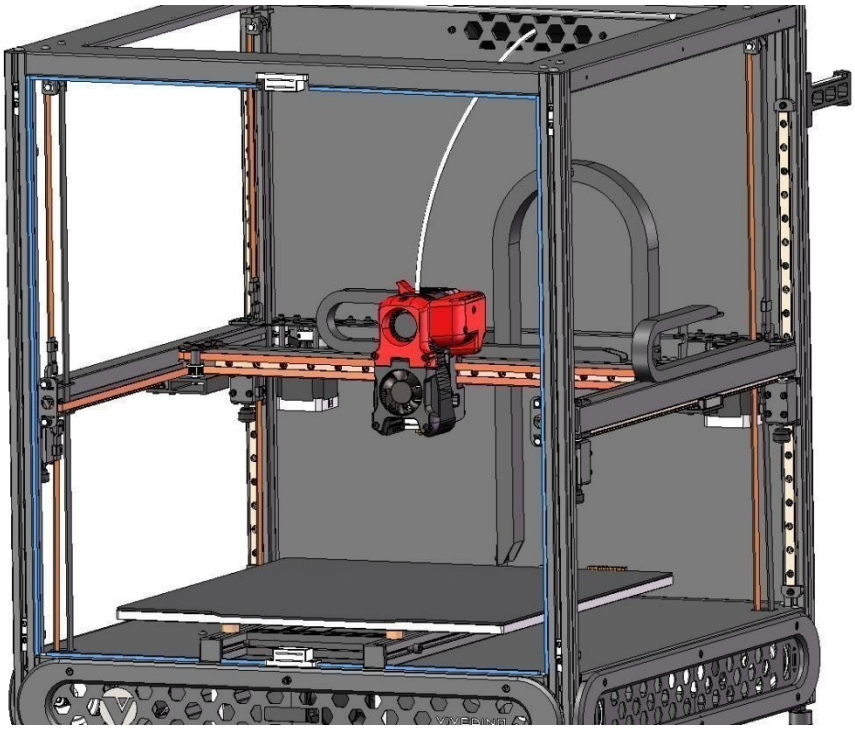
Install the front door as shown.



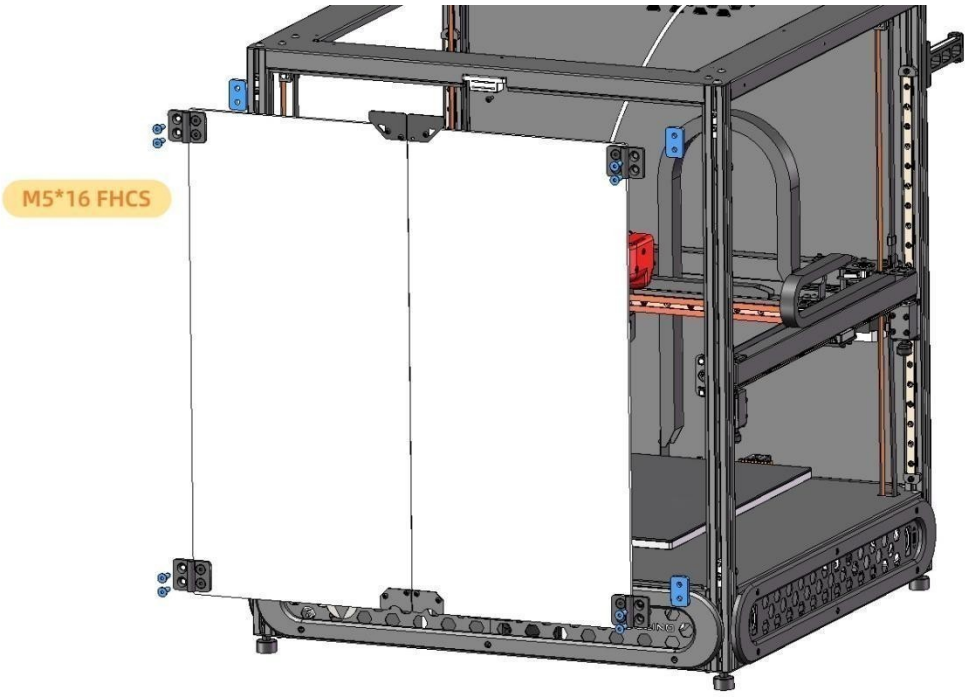
Put 8pcs M5 T-nuts in below positions.



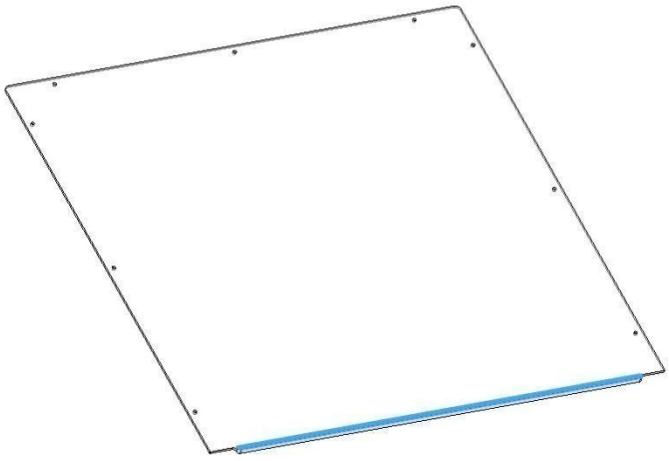
Apply 3mm thick foam tape to the frame for sealing as shown.



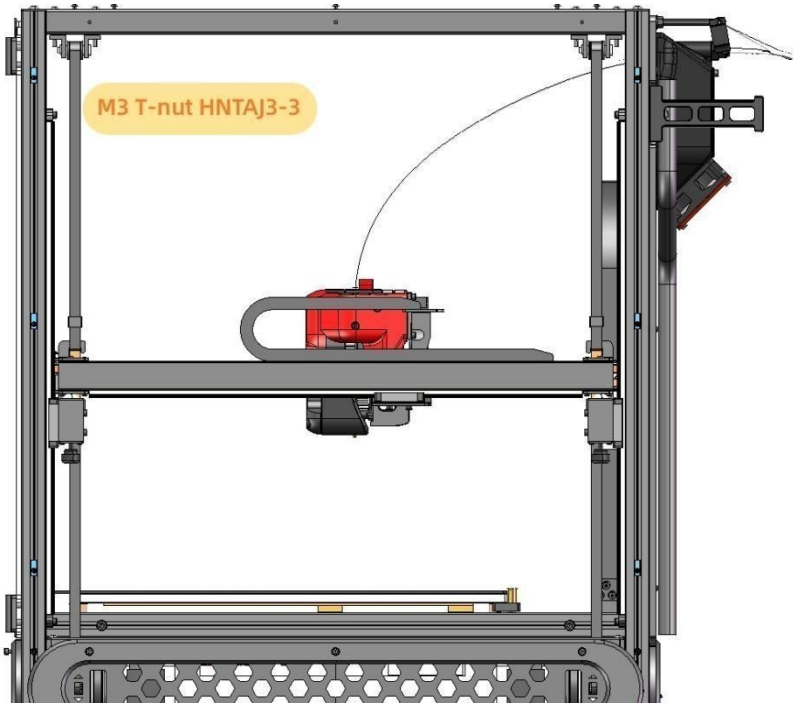
Attach the front door onto frame by screws.



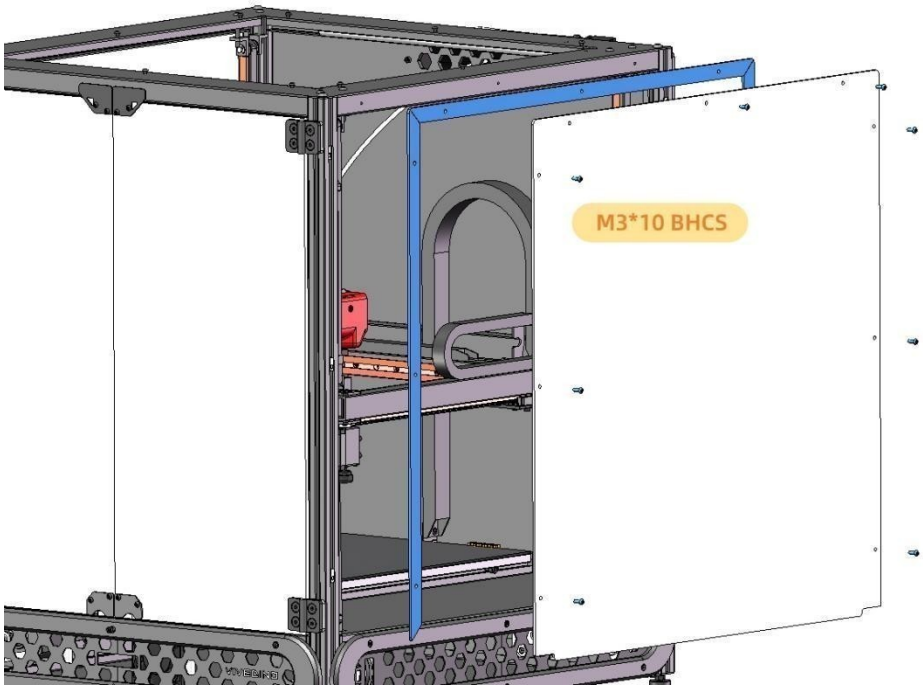
Apply 3mm thick foam tape on side panels as shown.



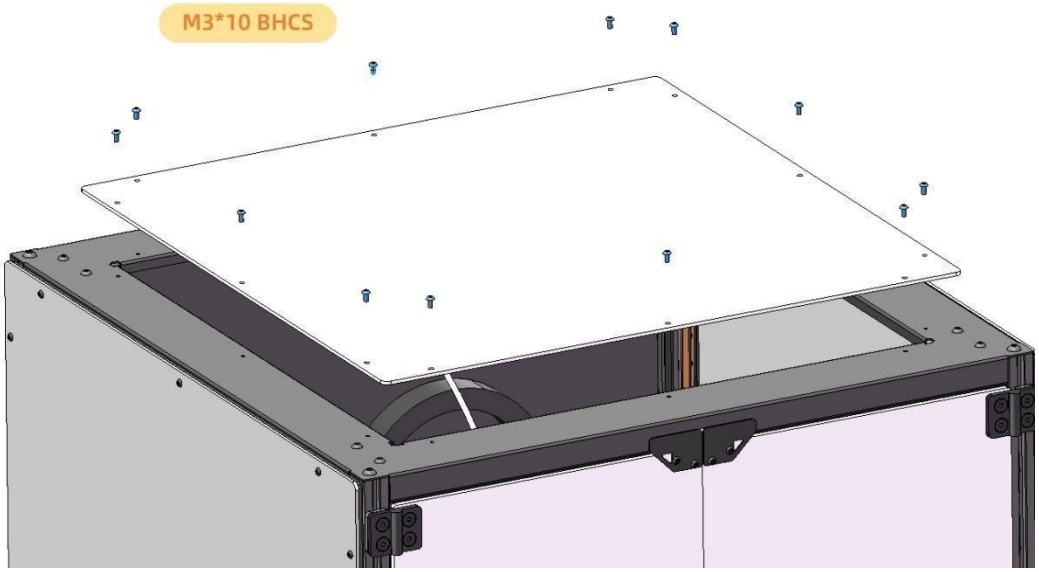
Put 6pcs M3 T-nuts in the side of frame.



Attach the side panel onto frame as shown.

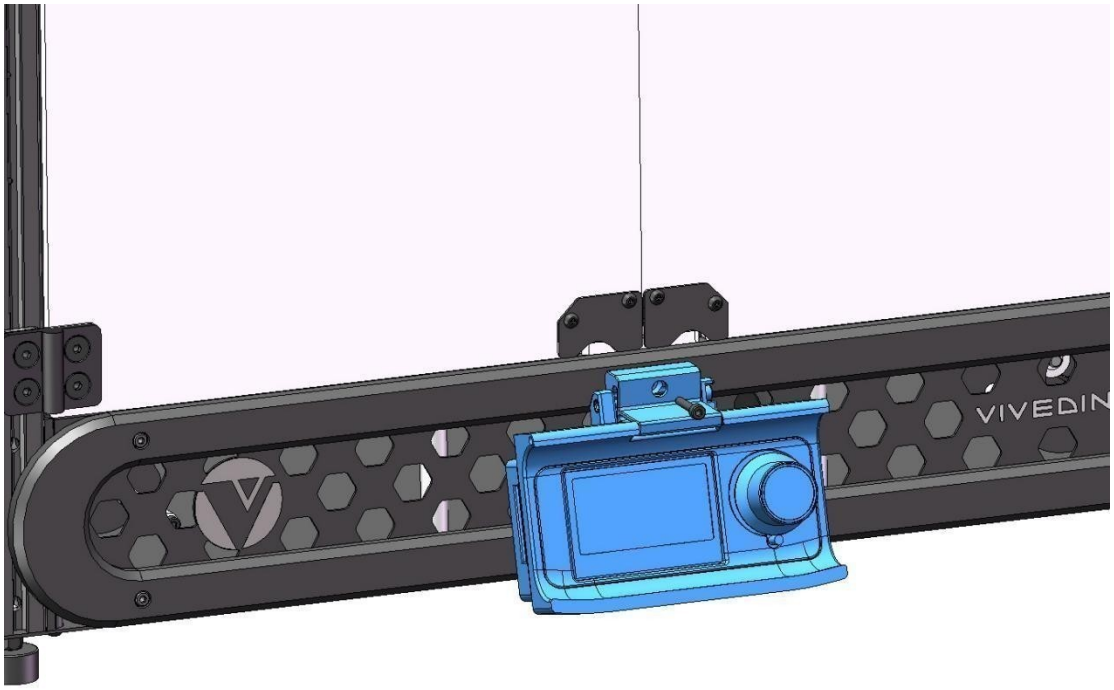


Install the top panel as shown.



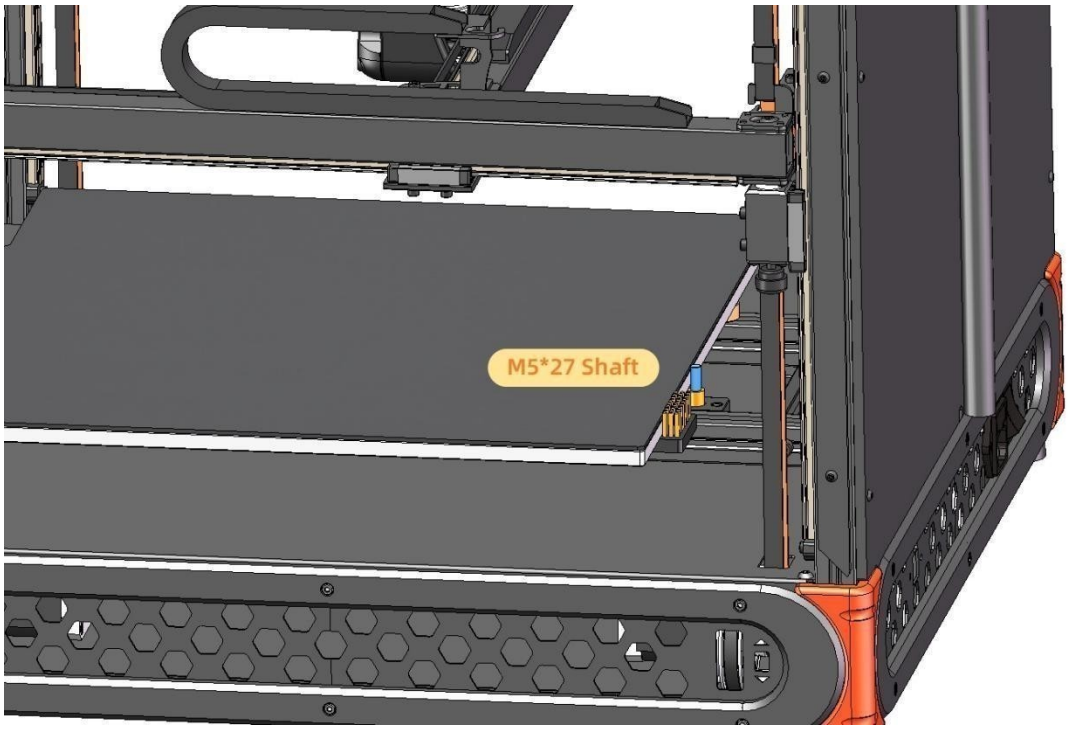
Remove the screw in below position.

Connect the two ribbon cables according to the label behind screen, then mount the screen by screw.



Install four corner guards.

Put the shaft into Z axis limit block.



Rotate four foot pads to level the machine and lock the pads by the nuts as shown.

Optional Status Lights will be here.