

## Assembly Manual

Small package. Big fun. Micron.

Introduction	03
Frame	06
Z Drives	27
Z Idlers	37
Heated Bed & Z Endstop	40
Gantry	46
A/B Idlers	50
A/B Drives	53
X/Y Joints	60
 	

---

This printer wouldn't have happened if it were not for all the hard work from the following users on the Voron Discord and Doom Discord. They contributed time, design work, plastic, and a general enthusiastic attitude for the project. All this helped Micron take shape.

- Deepfriedheroin
- DocSparky
- Finn
- Gfunnymoney
- Kayos Maker
- L.e.o.p.a.r.d
- TheWarolf
- zruncho

Additionally, Micron makes use of some excellent V2 mods as part of the stock build. Micron wouldn't be what it is without those components. Micron reflects what the community did with V2. We owe a special thanks to these mod creators.

- Josar, for the excellent and ubiquitous Klicky Probe. This allows Micron to probe like a V2, and do cool things like auto Z-offset..
- Slidr, for the Panzer Chains design. Easy to print and assemble, it scaled to Micron size with ease.

## STL FILE KEY

---

The STL naming convention used for Micron is the same as that used for VORON printers:

### PRIMARY COLOR

**Example z\_drive\_main\_a\_x2.stl**

These files will have nothing at the start of the filename.

### ACCENT COLOR

**Example [a]\_z\_motor\_mount\_a\_x2.stl**

These files will have "[a]" to the front to mention that they are intended to be printed with an accent color.

### QUANTITY REQUIRED

**Example [a]\_z\_motor\_mount\_a\_x2.stl**

If a file ends with "\_x#", that is telling you the quantity of that part required to build this system..

## PRINT GUIDELINES

---

The recommended print settings are also those used for VORON printers:

### FDM MATERIAL

Micron was designed for ABS. Use other plastics at your own discretion.

### LAYER HEIGHT

Recommended : 0.2mm

### EXTRUSION WIDTH

Recommended : Forced 0.4mm

### INFILL PERCENTAGE

Recommended : 40%

### INFILL TYPE

Grid, Gyroid, Honeycomb, Triangle or Cubic.

### WALL COUNT

Recommended : 4

### SOLID TOP/BOTTOM LAYERS

Recommended : 5

### SUPPORTS REQUIRED

None at all.

## HOW TO GET HELP

---

If you need assistance with your build you can head over the DOOMCUBE Discord server and post your questions (typically in the « micron » channel). It is the primary development channel for the Micron! You can also check the Github page for the latest releases.



**DISCORD**

<https://discord.gg/doomcube>

# GitHub

<https://github.com/hartk1213/Micron>



**Note:**

Look for this logo throughout the manual  
to take you to the github page for that part.

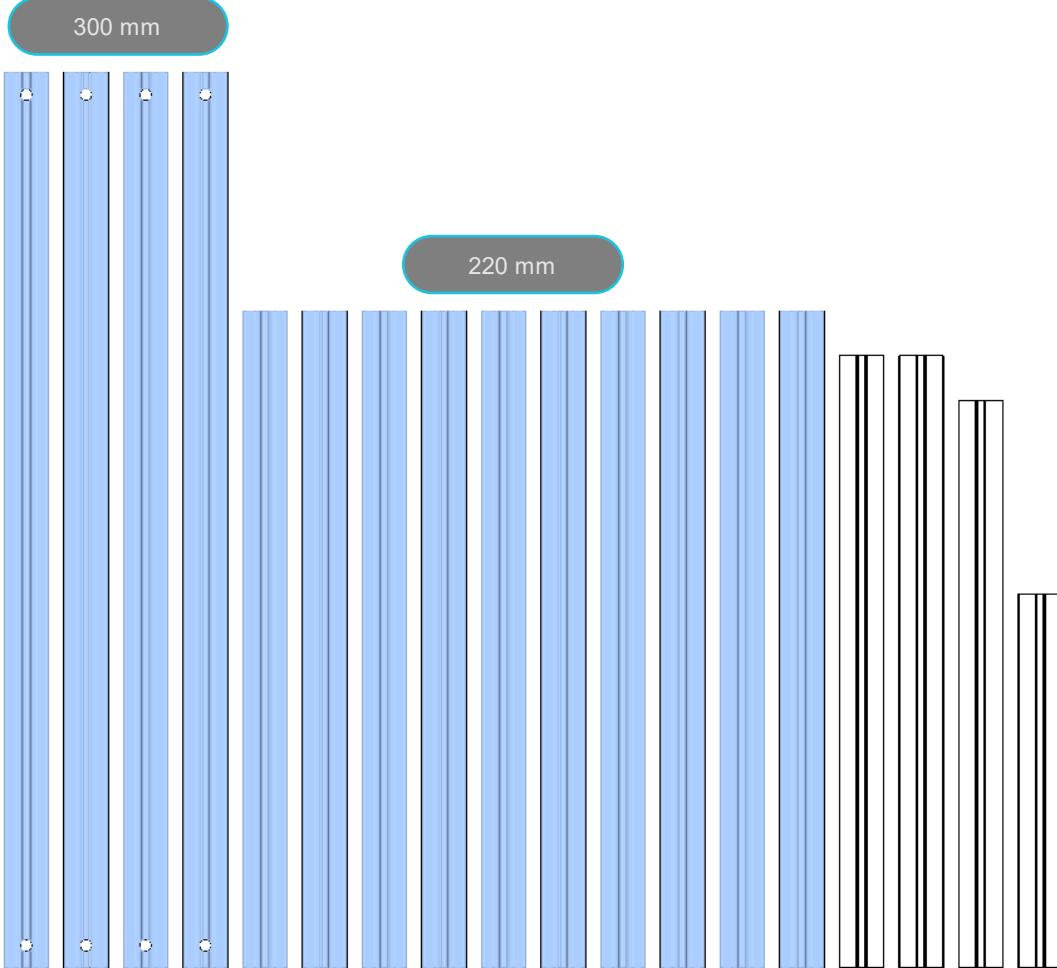
FRAME

MICRON



## GATHERING EXTRUSIONS

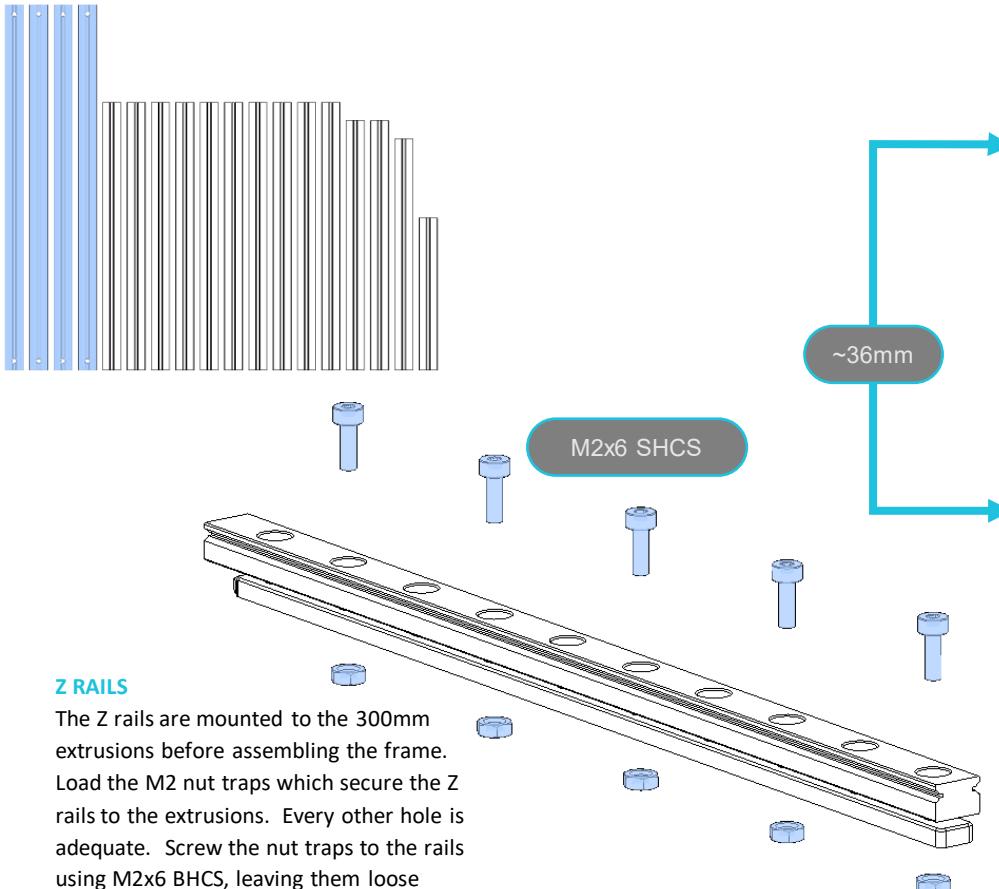
MICRON



### GETTING EXTRUSIONS TOGETHER

Separate your extrusions by length. In the following steps, we will use the four 300mm pieces, as well the ten 220mm pieces. The remaining extrusions will be used later in the build and can be placed aside for now.

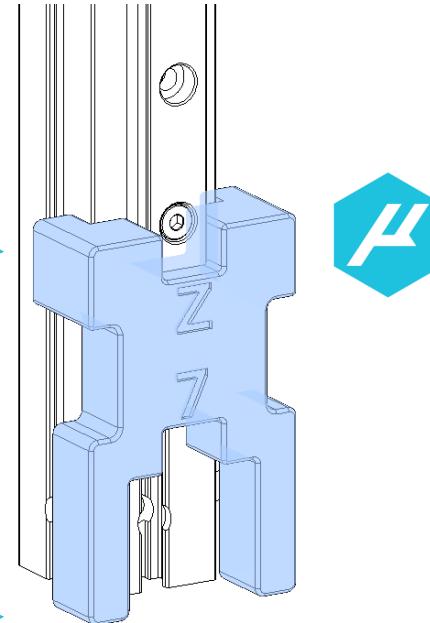
## Z RAIL



### Z RAILS

The Z rails are mounted to the 300mm extrusions before assembling the frame. Load the M2 nut traps which secure the Z rails to the extrusions. Every other hole is adequate. Screw the nut traps to the rails using M2x6 BHCS, leaving them loose enough so they may be easily slid into place on the extrusions. Slide the rail onto the 300mm extrusion, and repeat this process for the remaining 300mm extrusions. Don't tighten the screws, as we will align and secure them in the next step.

MICRON



### Z RAILS ALIGNMENT

Stand up one of the 300mm extrusions and use the printed rail alignment tool as shown to align the bottom of the rail. The rail end should be ~36mm from the bottom of the extrusion. Use a second rail alignment tool on the upper half of the rail, using the section marked '7', to properly center the length of the rail on the extrusion. Tighten the screws, being careful to maintain the alignment provided by the printed tools. Repeat this process for all 4 300mm extrusions and their rails.

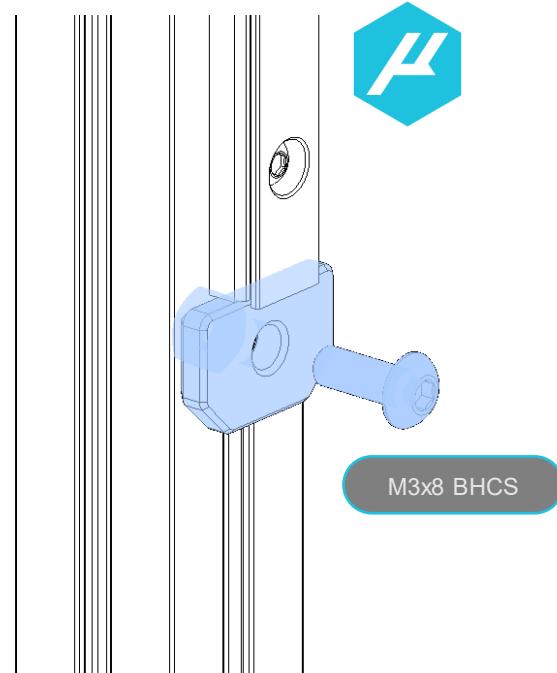
## Z RAIL STOPS

MICRON



### RAIL STOPS

With the Z rails installed, the rail stops can now be added to both ends. Loosely screw an M3x8 BHCS through the rail stop into an M3 nut and slide it into place. Tighten the screw firmly. Repeat for both ends of all 4 Z rails. Now you can work on the build without risking a Z carriage flying off its rail.

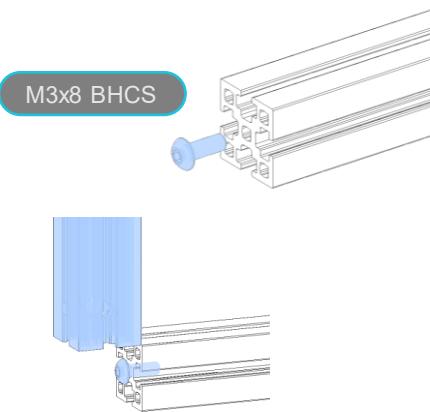


### TAKE YOUR TIME

Your entire printer is built on and around the frame. Take extra time while assembling the frame to be sure everything is lined up correctly and square. Check the diagonal measurements of all sides as you build, in an 'X' shape across each side of the frame. Both measurements for each 'X' should be the same. If these measurements are the same or within 1mm, consider your frame built, and proceed with your build.

### BLIND JOINTS

Blind Joints provide a cost effective and rigid frame assembly method. An M3x8 BHCS is screwed partially into the end of one extrusion. The exposed head of the M3 screw is slid into the channel of the mating extrusion, and the screw is tightened through a small access hole in that extrusion. It is simple, clever, and cost effective.



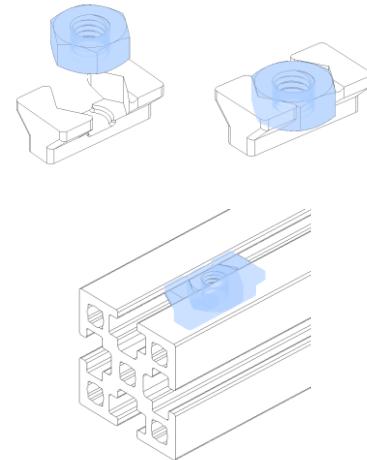
### BUILD ON A FLAT SURFACE

Assemble your frame on the flattest surface you have available. Glass tables and granite counters are two excellent options. This will make it much easier to assemble a frame that is square all the way around.



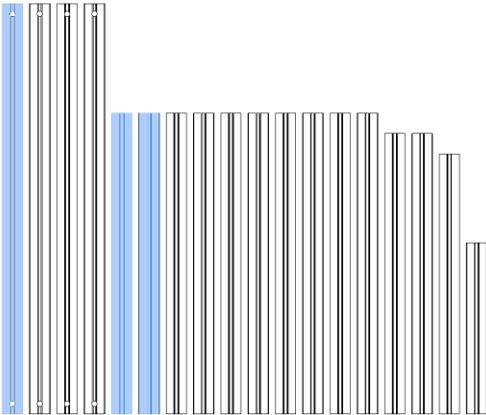
### NO DROP NUTS (OPTIONAL)

1515 extrusions require many nuts to be preloaded during frame assembly. To ease both installation and alignment of these nuts, you can use these printed "No Drop Nuts" to keep them in place and in the correct orientation. They can be used anywhere preloaded nuts are needed. For linear rails, use the long printed nut traps.



## ASSEMBLE FIRST CORNER

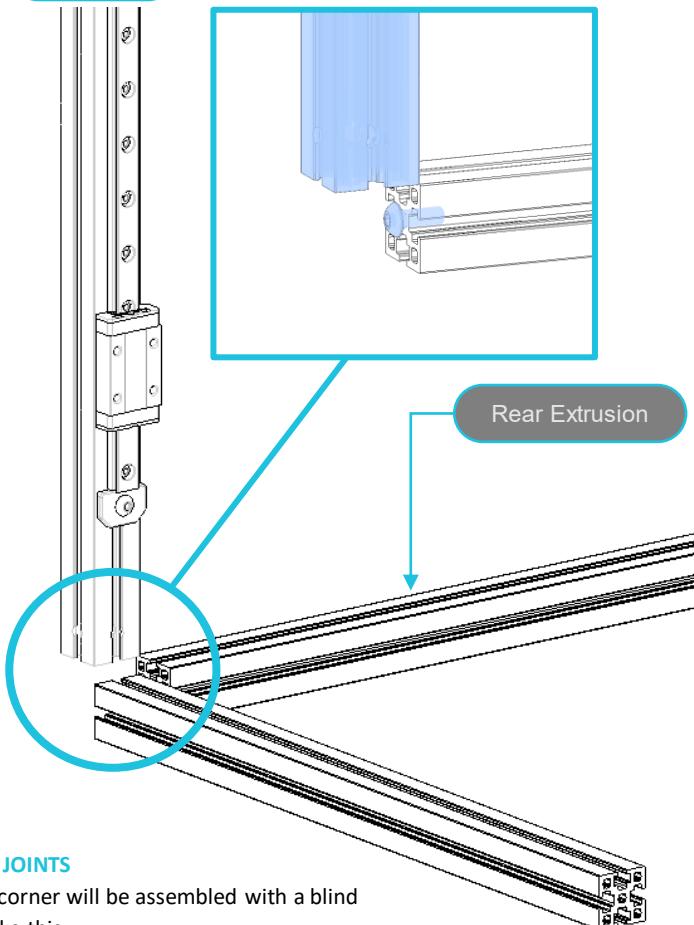
MICRON



Corner #1

### CORNER #1

Corner #1 will always be the rear left corner when referenced.



### NOTE on PRELOADS

Once the frame is built, we will not have access to the slots of the 220mm extrusions. This means that as we assemble the frame, we must preload nuts correctly into each 220mm extrusion, before we proceed to a step that seals up both ends of the slots. The preloads are labeled clearly, on the step that seals up each extrusion. Be sure you load them all before you connect the beams together and seal the slots.

### BLIND JOINTS

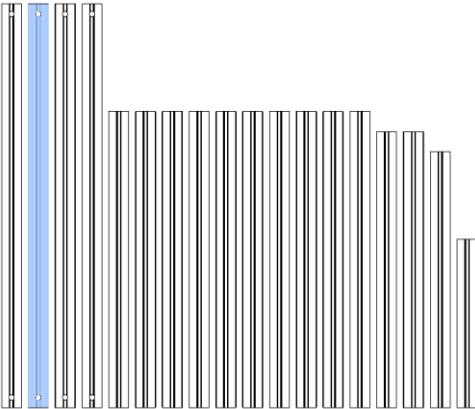
Every corner will be assembled with a blind joint like this

### CORNER #1 ASSEMBLY

Start with one of our preassembled 300mm Z extrusions, and two of the 220mm extrusions. Screw an M3x8 BHCS partially into one end of each 220mm extrusion. Lay them out in an 'L' shape on your assembly surface, with the exposed button heads facing the corner. Before proceeding, note that the end of the Z extrusion with the 36mm gap is the bottom. Also note the direction the linear rail is facing. The 300mm Z extrusion should be slid onto the exposed button heads as shown, forming the first corner with the two 220mm beams. While using your assembly surface to hold things flush and square, tighten the two screws to make the first corner secure.

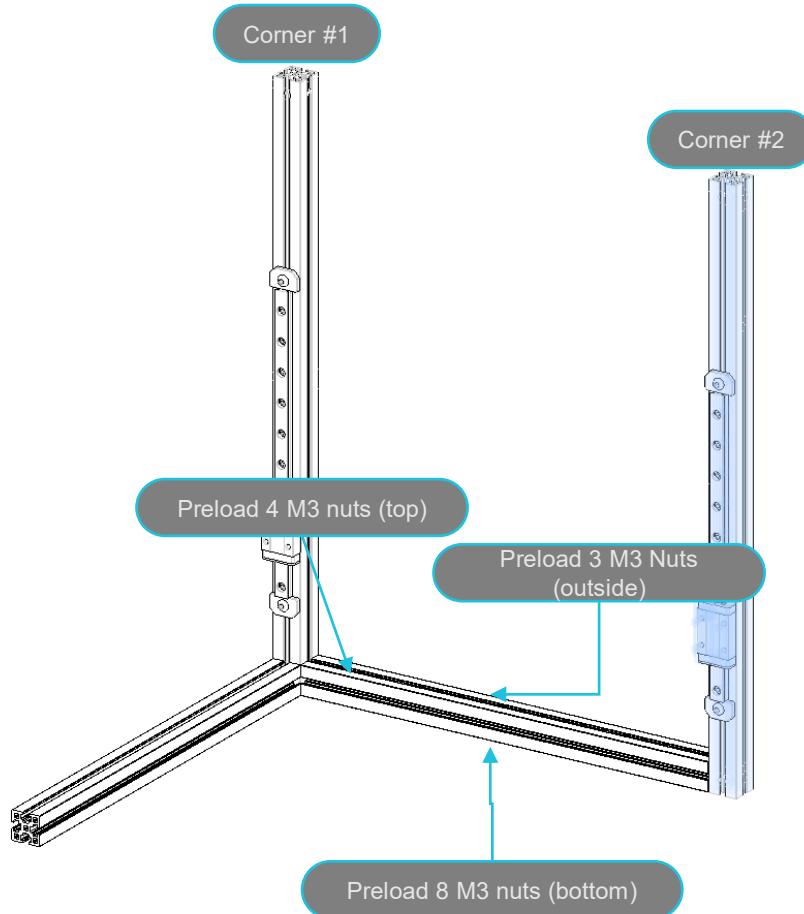
## ASSEMBLE SECOND CORNER

MICRON

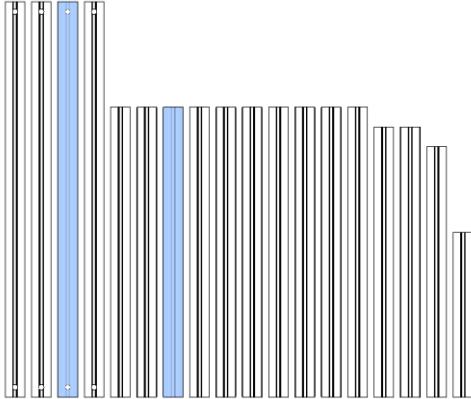


### CORNER #2 ASSEMBLY

Before adding the next 300mm extrusion, preload nuts into the 220mm extrusion that is about to be enclosed, as shown. It receives : 4 nuts on top, 8 nuts on bottom, and 3 nuts on the outside slot. Corner extrusion #2 will install the same as the first, using an M3x8 BHCS for the blind joint. Note that the linear rail should face the same direction as the rail on Corner #1. Keep things as square and flush as possible as you tighten the screw to snug up the corner.

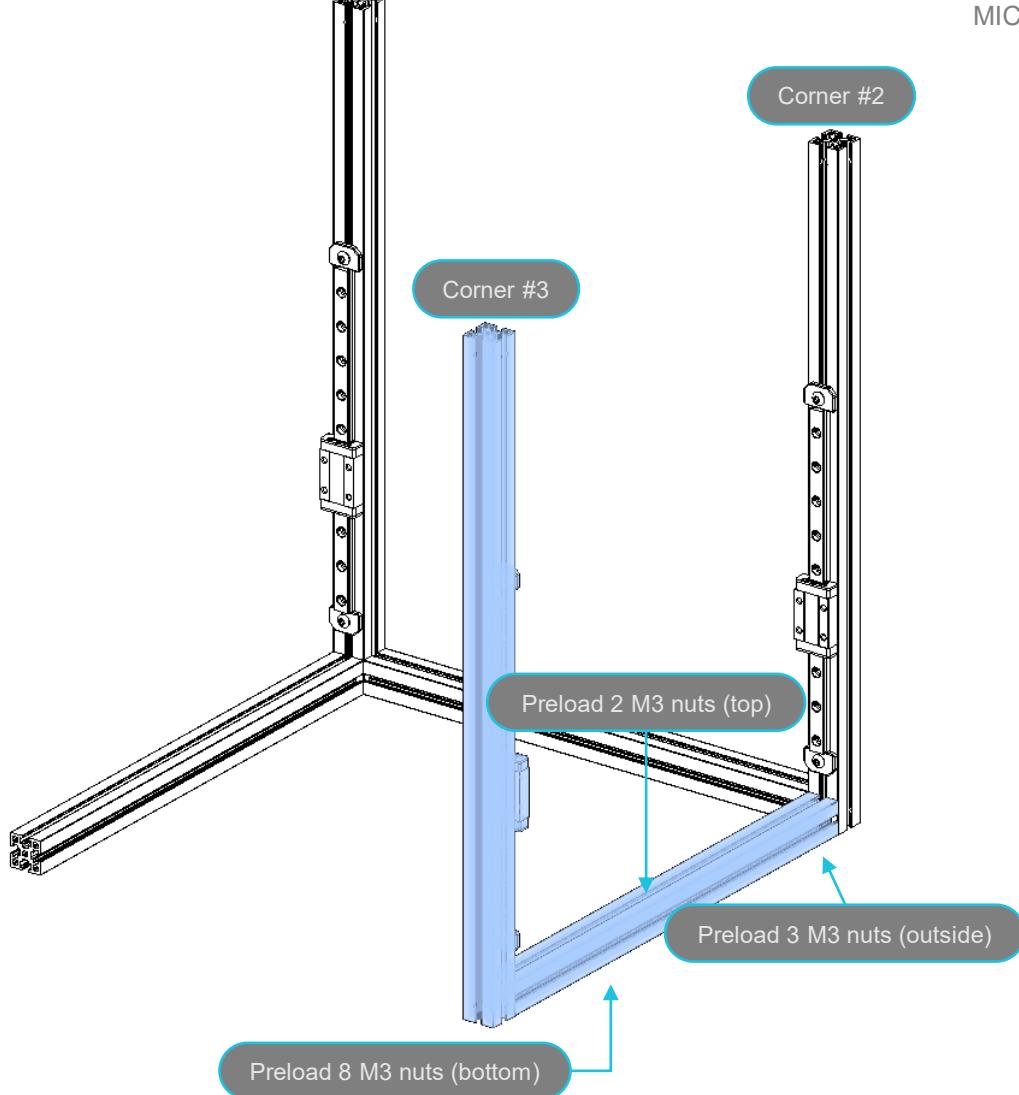


## ASSEMBLE THIRD CORNER



Corner #1

MICRON

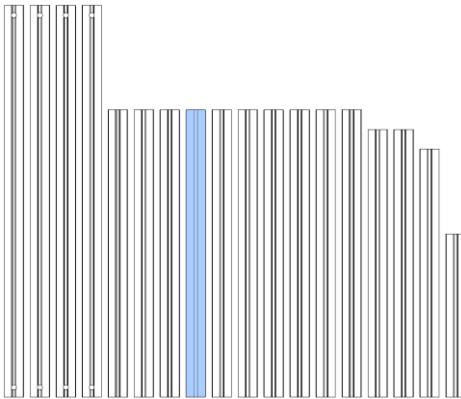


### CORNER #3 ASSEMBLY

Before adding the next 300mm extrusion, preload M3 nuts into the 220mm extrusion that is about to be enclosed, as shown. It receives : 2 nuts on top, 8 nuts on bottom, and 3 nuts on the outside slot. Corner extrusion #3 will install the same as the others, using an M3x8 BHCS for the blind joint. Note that the linear rail should face Corner #2. Keep things as square and flush as possible as you tighten the screw to snug up the corner.

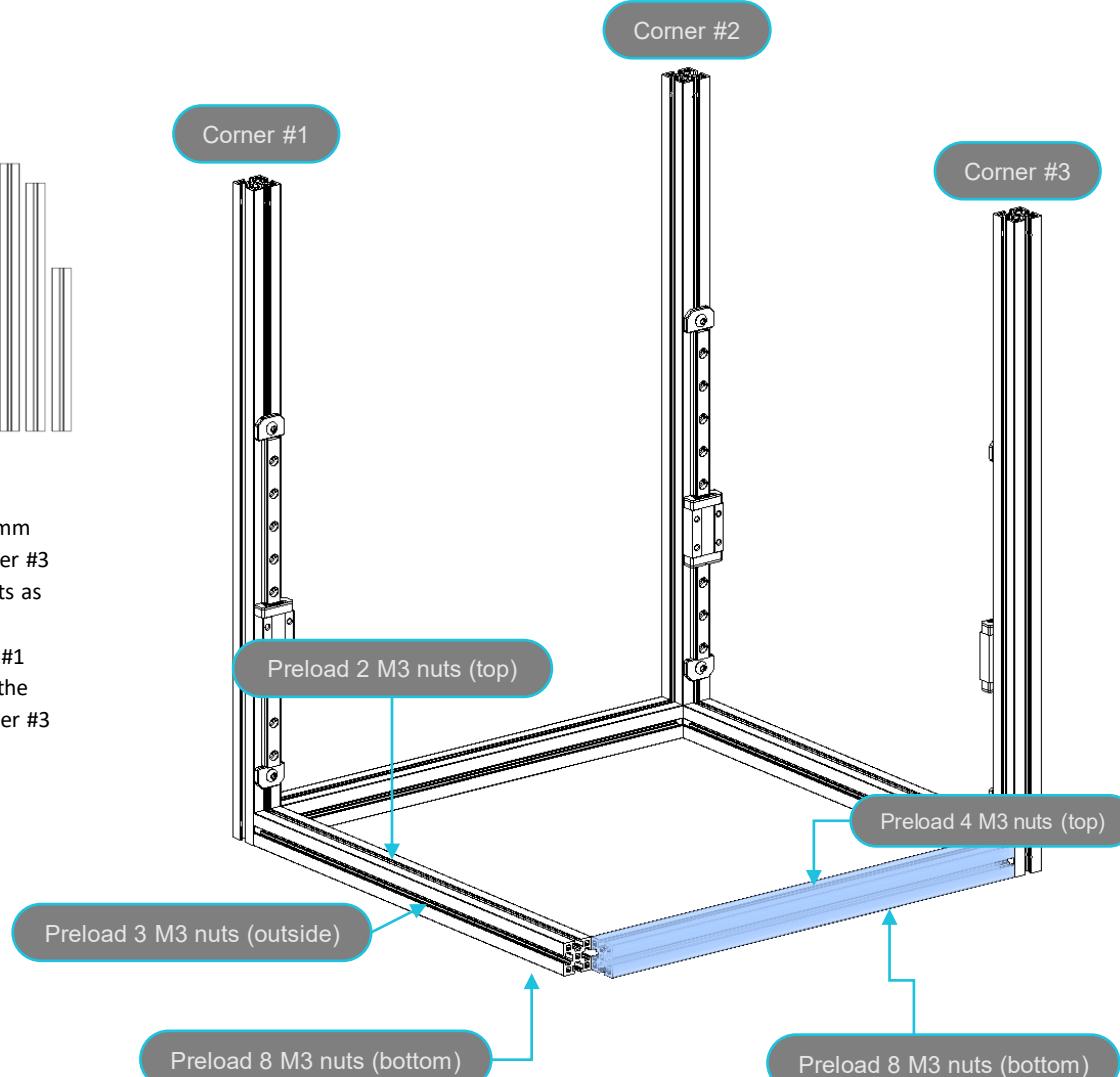
## FINAL LOWER EXTRUSION

MICRON

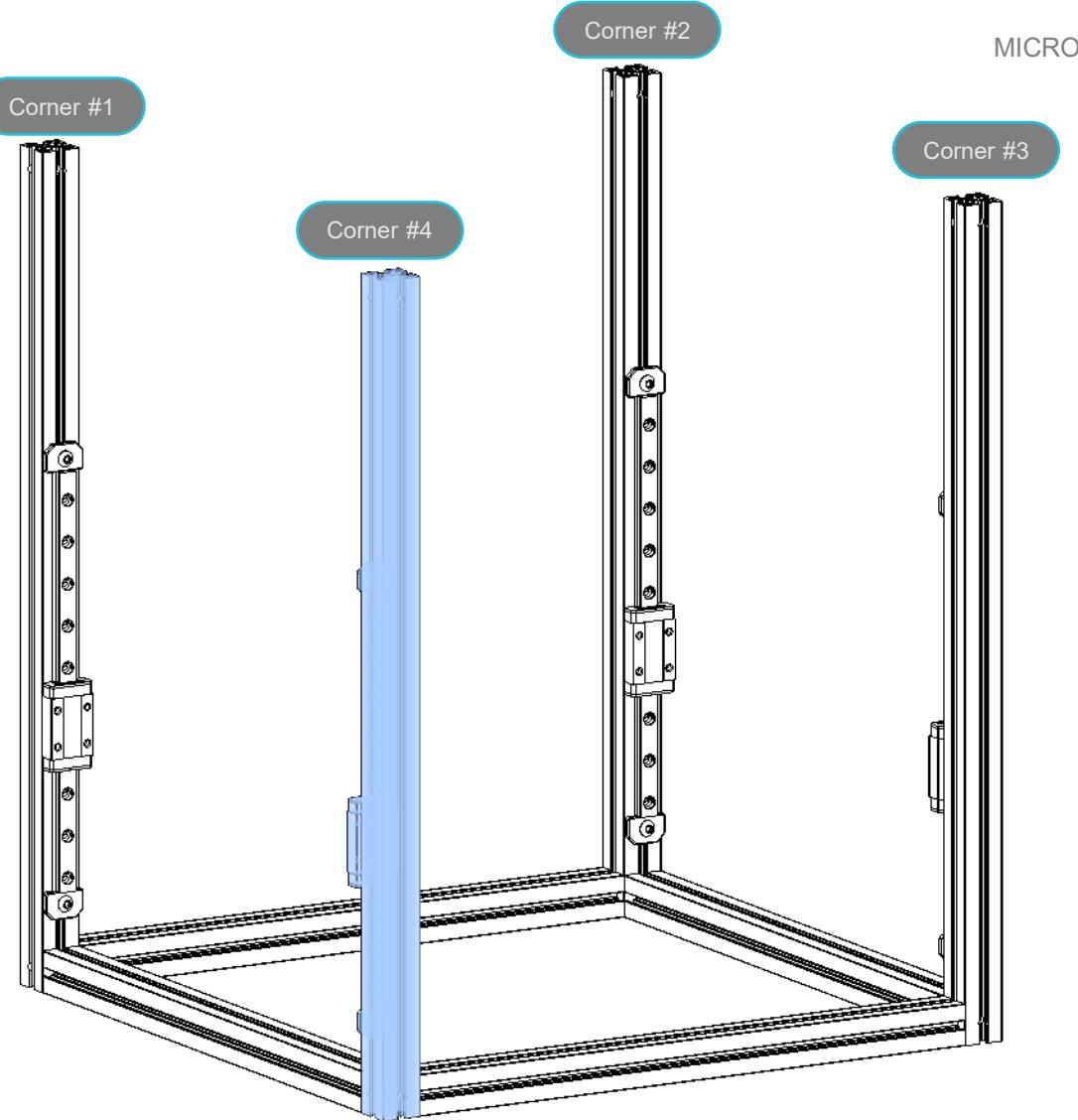
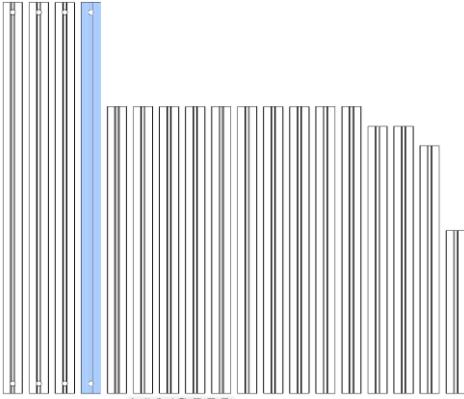


### FINAL LOWER EXTRUSION

Before adding Corner #4, the last 220mm extrusion needs to be secured to Corner #3 with a blind joint. Then preload all nuts as shown, before proceeding to the next page. The beam connected to Corner #1 gets: 2 on top, 8 on bottom, and 3 on the outside. The beam connected to Corner #3 receives: 4 on top, and 8 on bottom.



## ASSEMBLE THE FOURTH CORNER

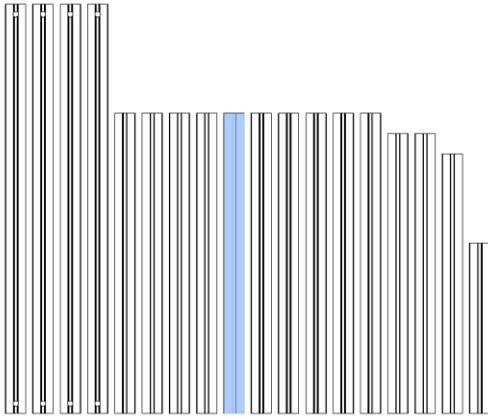


MICRON

### CORNER #4 ASSEMBLY

Now add the last 300mm extrusion, being sure the linear rail faces Corner#1. Use blind joints to secure it to the 220mm extrusions as we did with the other corners. The bottom half of the frame is complete. Great job! Did you get all the preloads in place? This would be a great time to make a visual count, and double check.

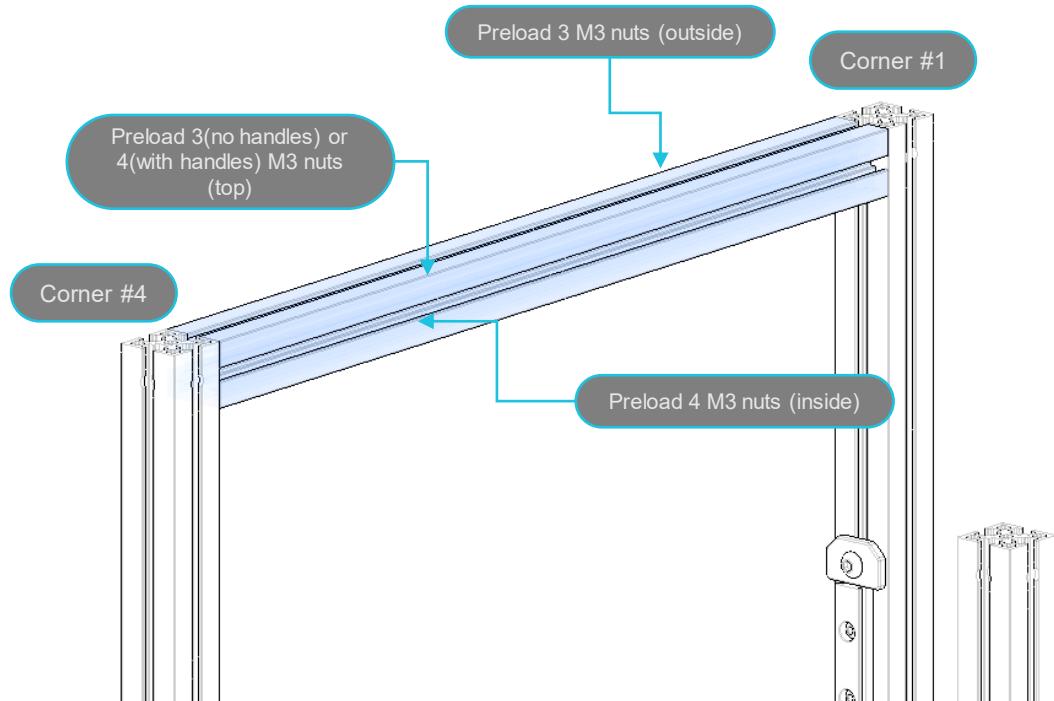
## TOP OF FRAME



MICRON

## MICRON HANDLES

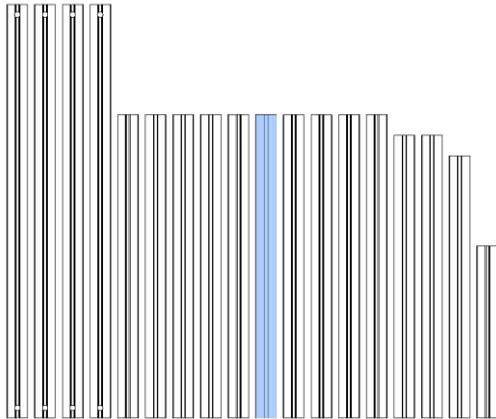
Handles are an optional component you can install atop your Micron. They make carrying the printer very easy. If you prefer the clean look, be sure to skip the extra preloads called out for the handles.



## UPPER FRAME ASSEMBLY

The remaining four 220mm extrusions will install using blind joints, the same way the lower ones were assembled. The following pages will detail the preloads for these beams, including preloads for the optional handles. Start with the beam that connects Corners #1 and #4. It receives: 4 nuts on top if installing handles(3 nuts for no handles), 4 nuts on the inside, and 3 nuts on the outside.

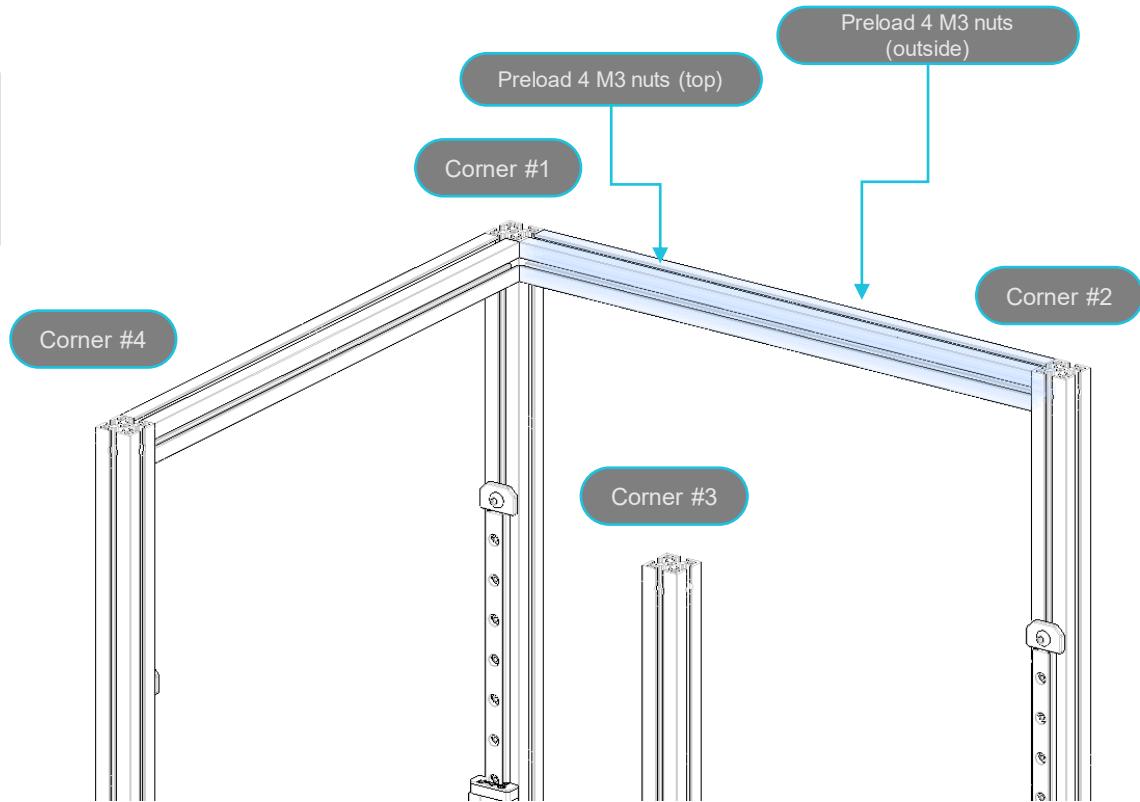
## TOP OF FRAME



MICRON

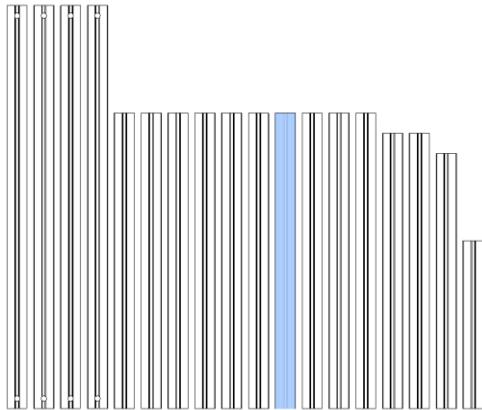
## TOP OF FRAME

The 220mm extrusion that connects Corners #1 and #2 receives: 4 nuts on top, and 4 nuts on the outside slot. Attach using blind joints as with previous beams.



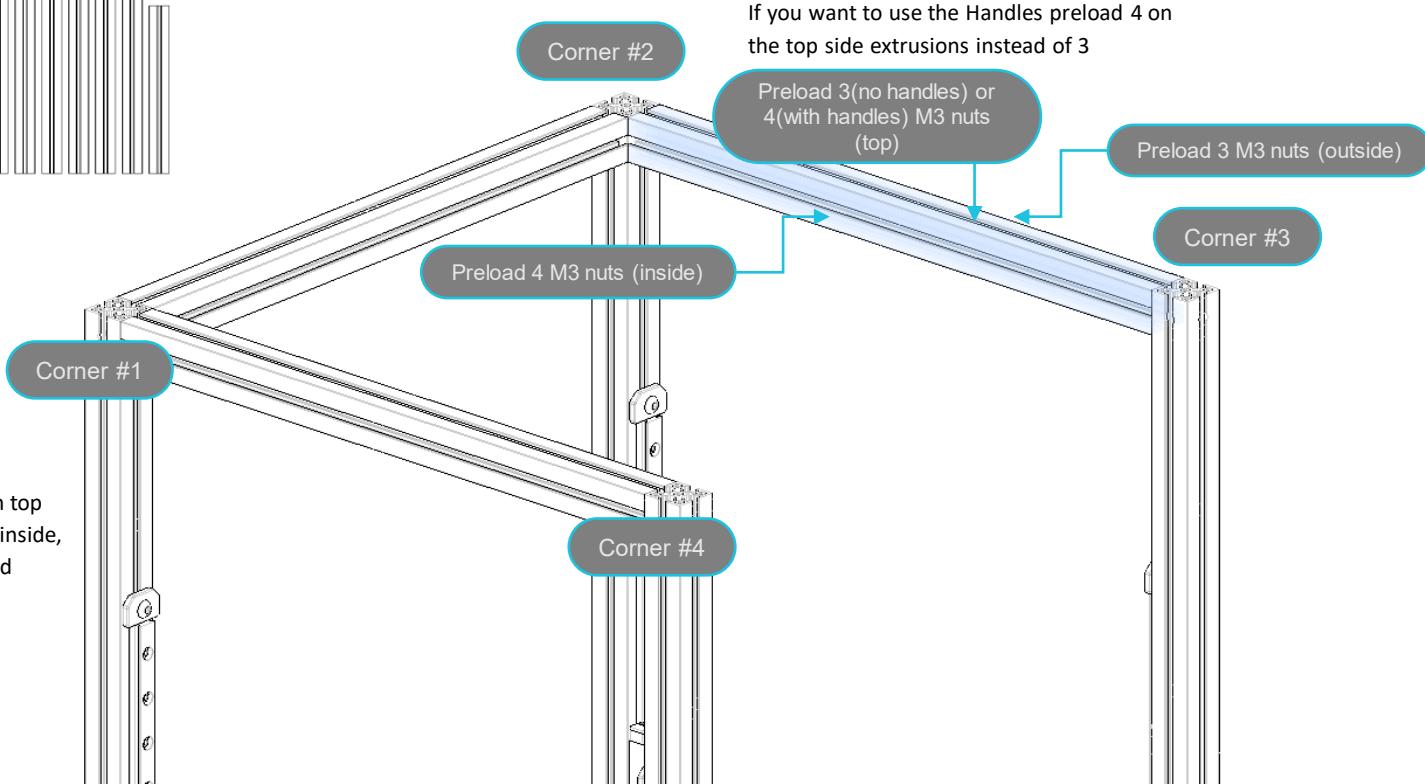
## TOP OF FRAME

MICRON

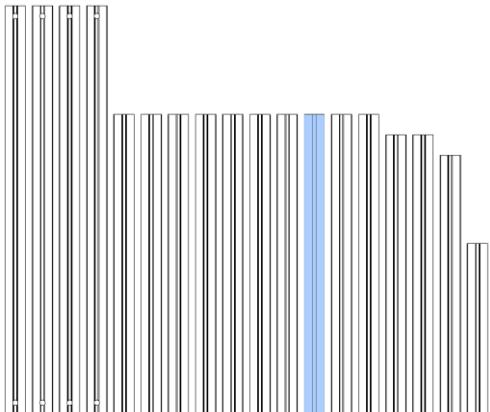


## TOP OF FRAME

The 220mm extrusion that connects Corners #2 and #3 receives: 4 nuts on top for handles(3 for no handles), 4 nuts inside, and 3 nuts outside. Attach using blind joints as with previous beams.



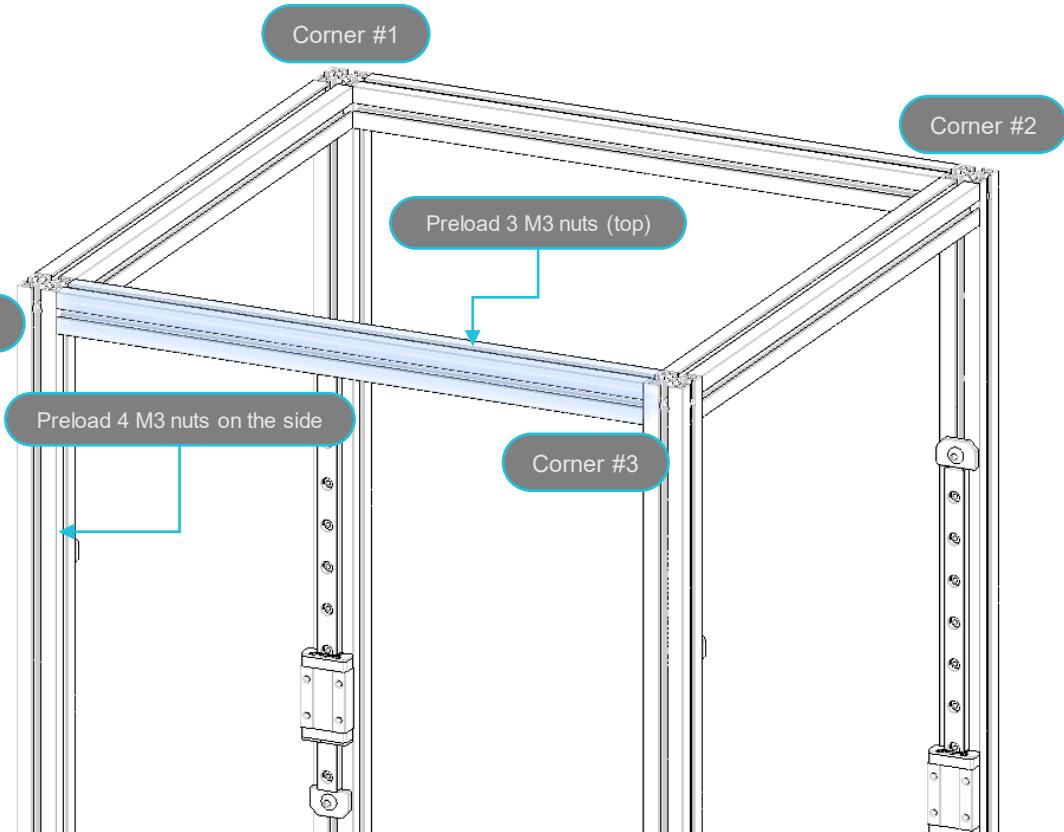
## FRAME

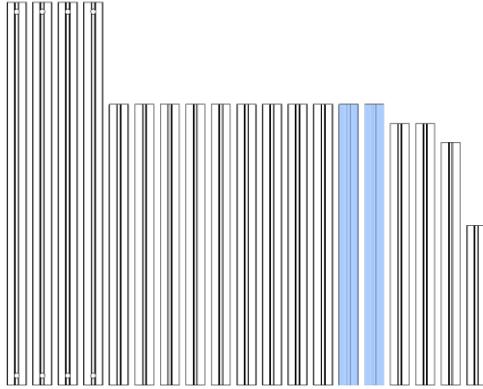


MICRON

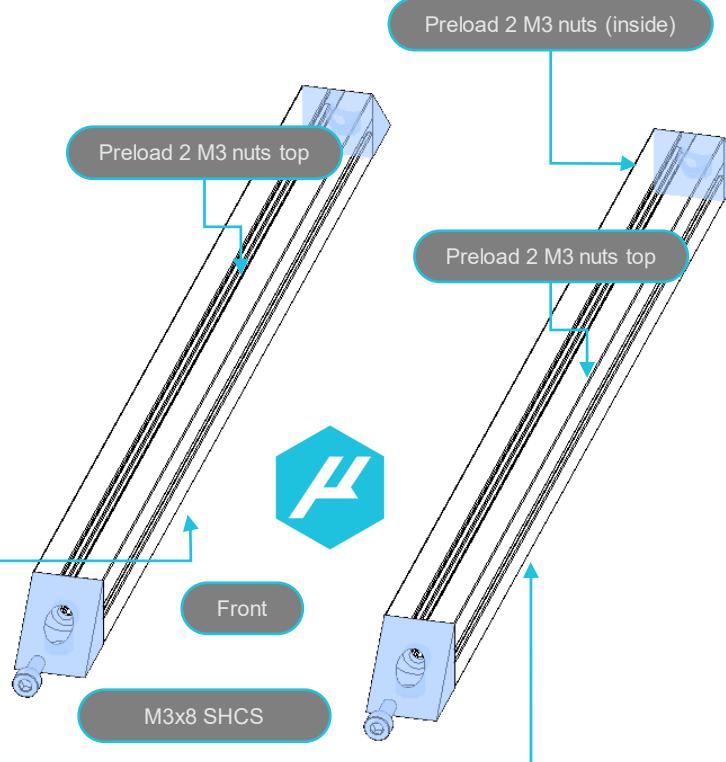
### TOP OF FRAME

Before placing the final 220mm beam, Corner #4 gets 4 M3 nuts preloaded in the slot that faces corner #3. The final 220mm extrusion itself receives: 3 nuts on top.



**BED EXTRUSIONS**

Before you attach the 4 corner brackets, you need to preload all the M3 nuts. The left beam receives: 2 nuts on top, and 2 nuts on bottom. The right beam receives: 2 nuts on top, 2 nuts on bottom, and 2 nuts in the inside slot(facing the other beam). Attach the 1515 angled brackets to the ends of both bed extrusions using M3x8 SHCS.

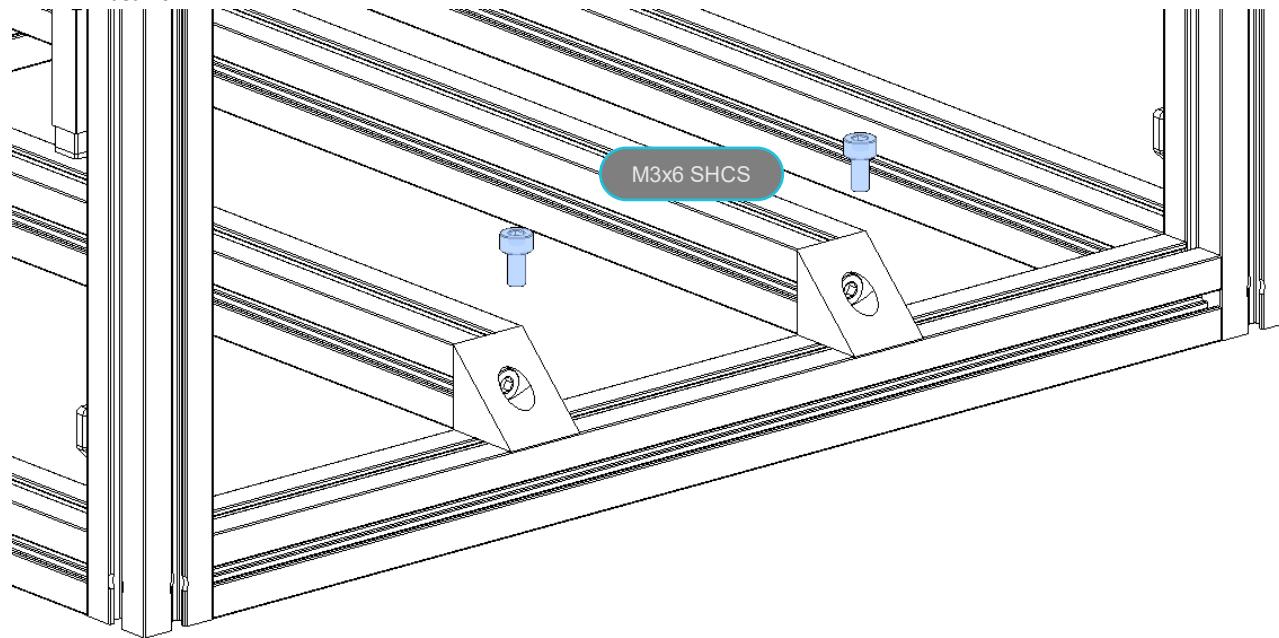


## BED EXTRUSIONS

MICRON

### BED EXTRUSIONS

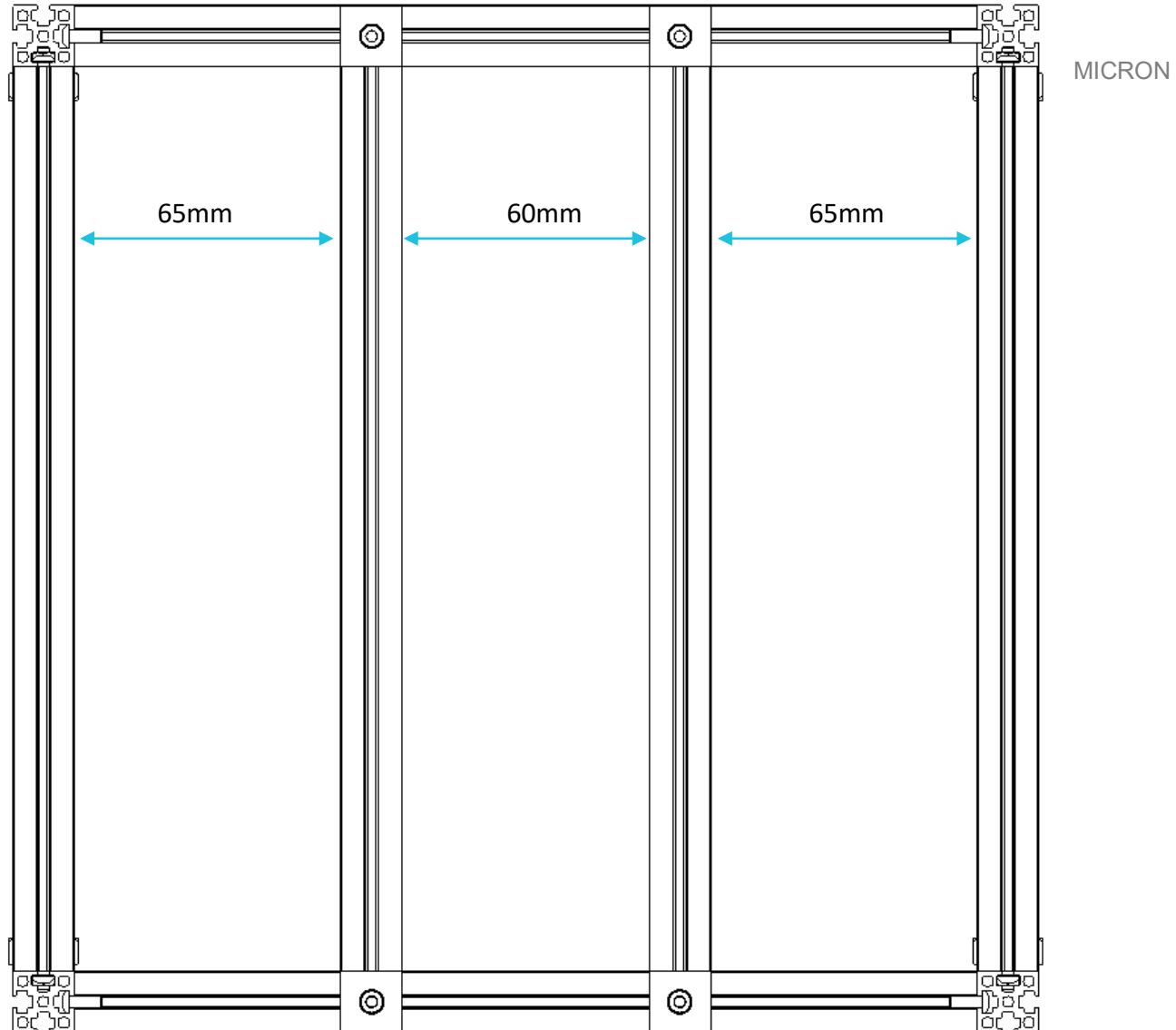
Mount the bed extrusions as shown, running front to back in the printer. Use the 2 middle nuts, of the 4 preloaded into each slot. There should be a loose nut on the outside of each beam when done, for the Z belt hole covers. The next page describes the proper spacing of these beams.



## BED ASSEMBLY

### BED EXTRUSIONS

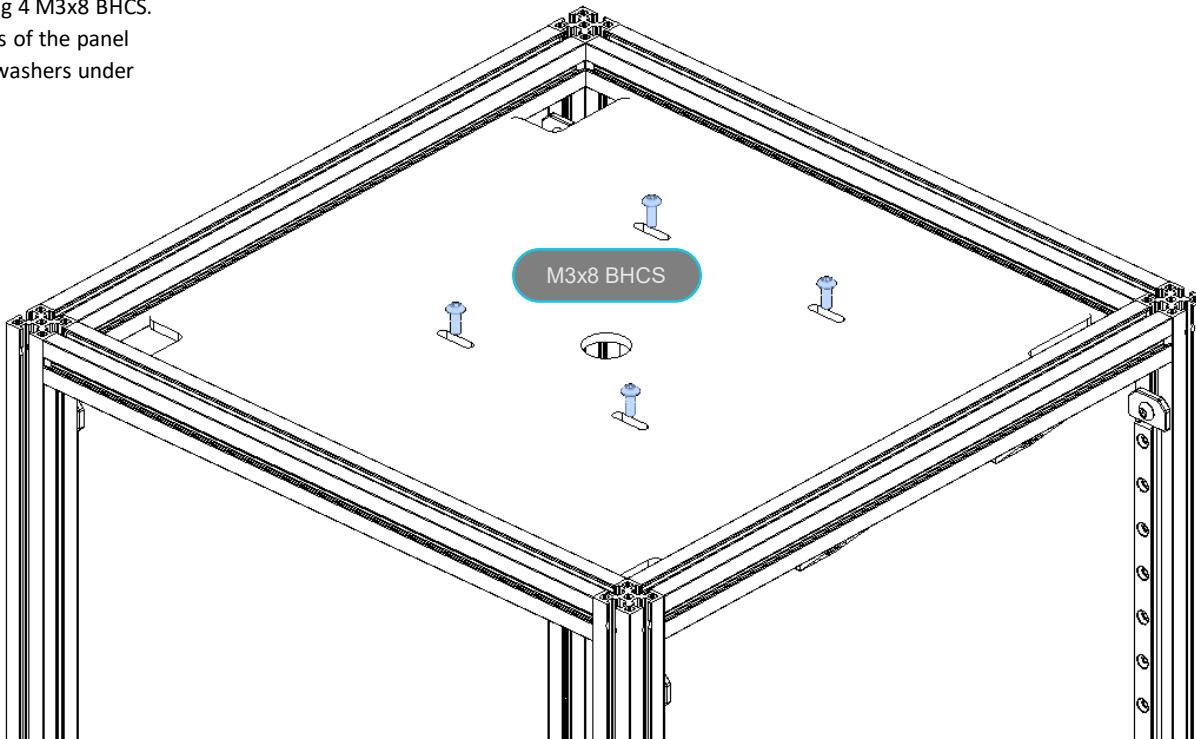
Mount the bed extrusion as shown, making sure to center the extrusions on the frame with 60mm of space between them



**DECK PANEL**

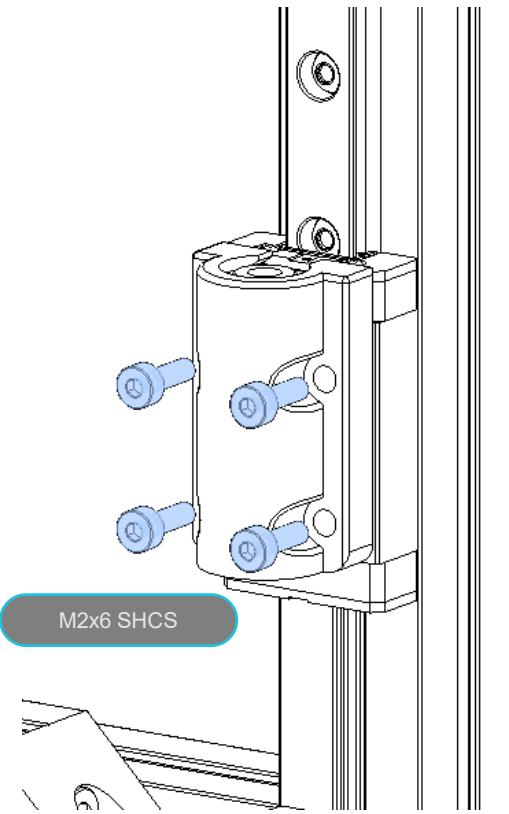
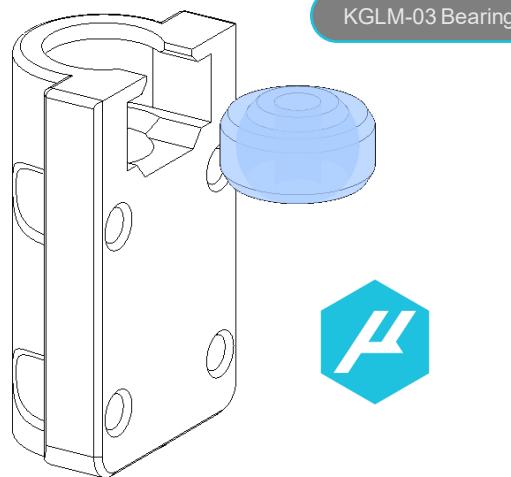
Install the deck panel , using 4 M3x8 BHCS.

Depending on the thickness of the panel  
you may or may not need washers under  
the screws



### Z JOINTS

Install the 4 KGLM-03 bearings into the printed part. Attach these to the Z rail carriages using 4 M2x6 SHCS

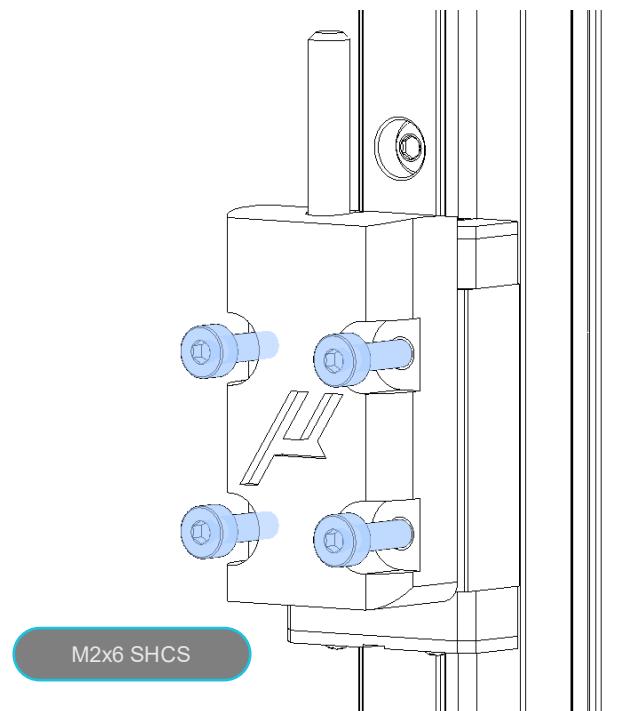
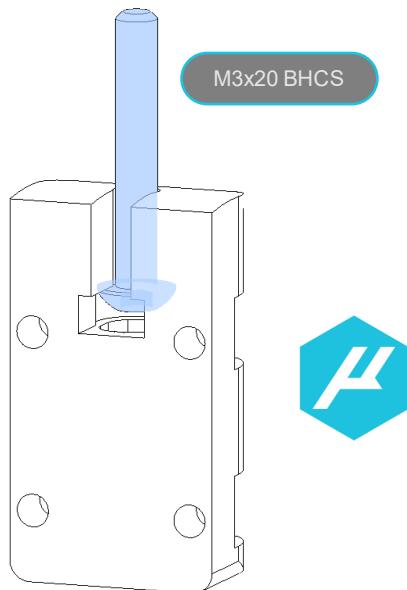


## Z JOINTS (Option 2)

MICRON

### Z JOINTS

Attach these to the Z rail carriages using 4  
M2x6 SHCS



**FRAME**

MICRON

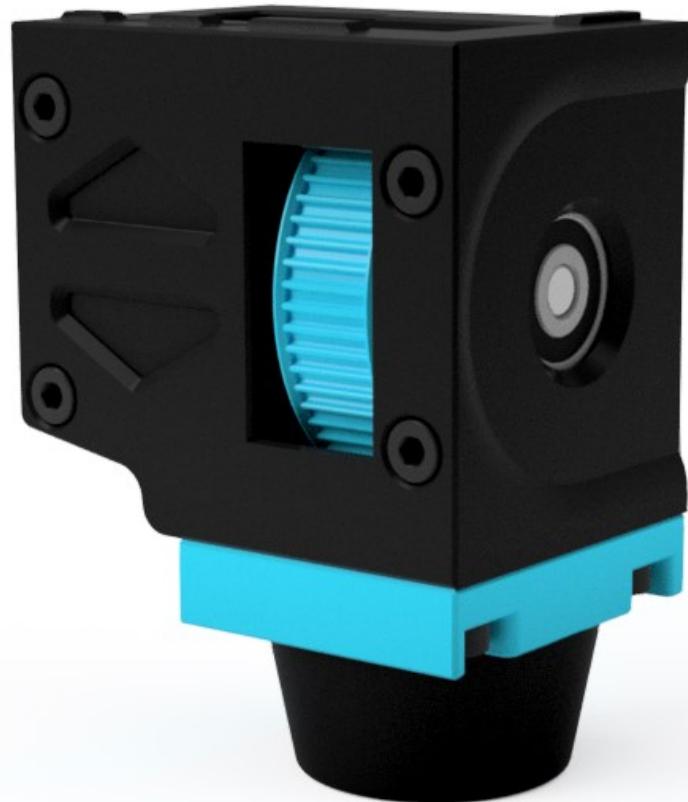


**FRAME**

At this point your frame should be looking like this.

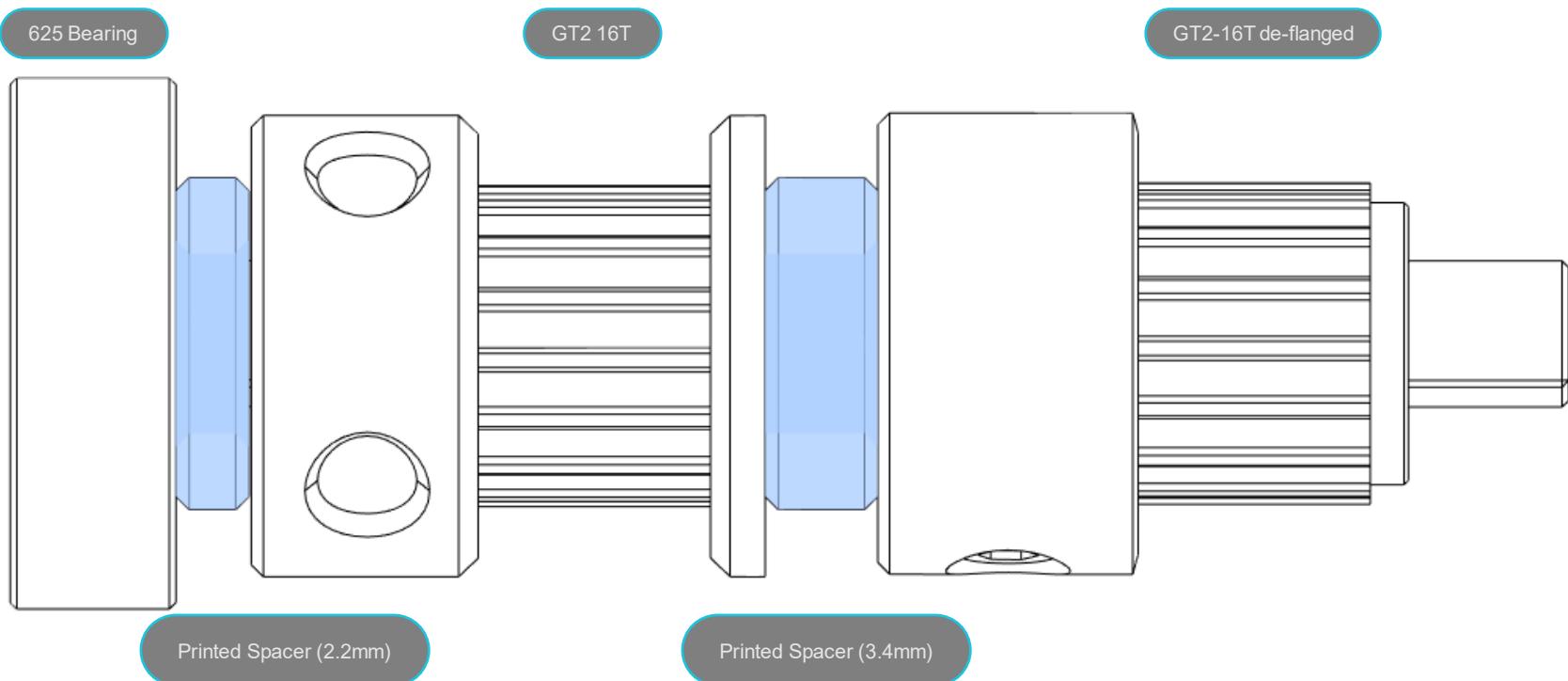
Z DRIVES

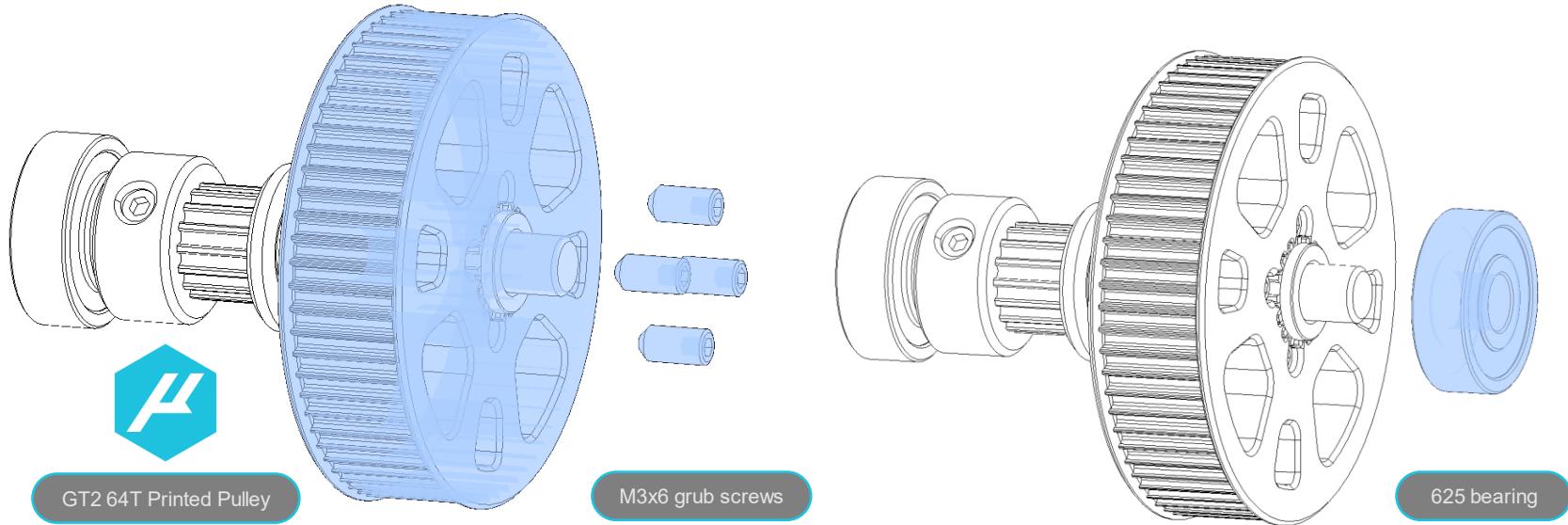
MICRON



## Z DRIVE 64T PULLEY ASSEMBLY

MICRON





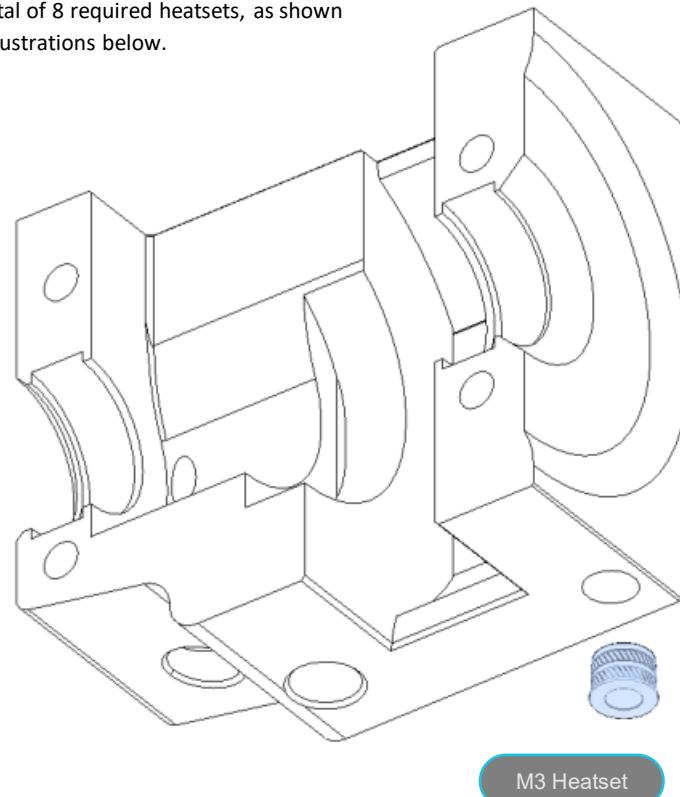
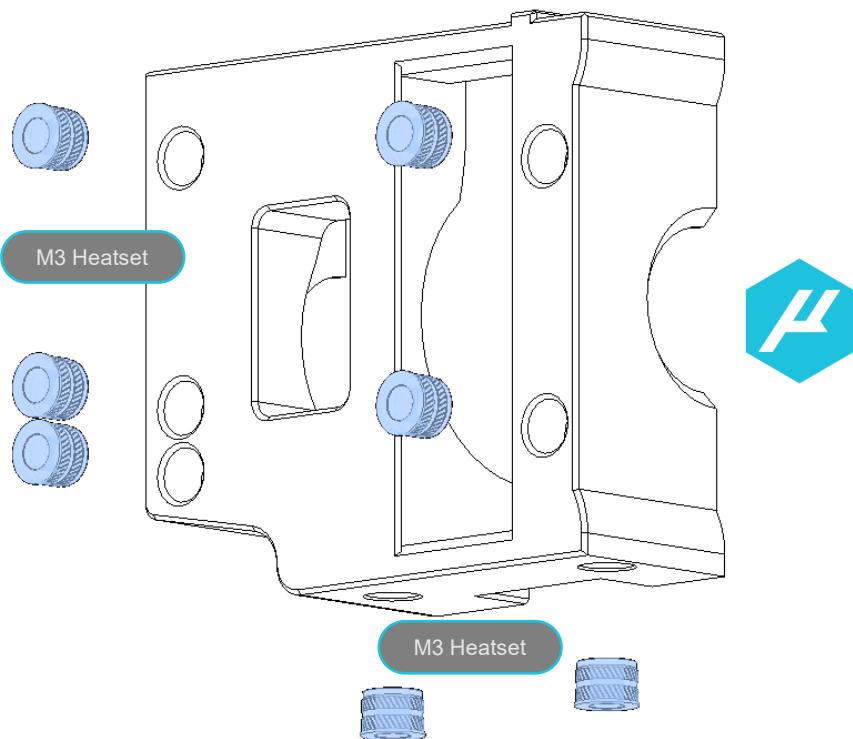
### ASSEMBLING 64T PULLEY

The printed pulley has a flat side and a concave side. The de-flanged pulley slides into the concave side of the printed pulley and is secured from the flat side with grub screws.

Four M3x6 grub screws are inserted to lock the two components together. To ensure proper operation of the assembled Z drives, ensure that you drive the grub screws in all the way, until they are flush with or just below the flat face of the printed pulley.

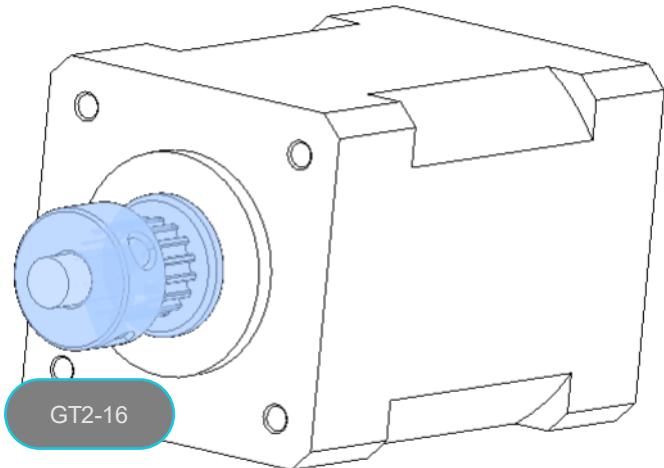
**Z DRIVE ASSEMBLY**

Begin by installing the heatset inserts into the Z drive parts. Each pair of Z drive halves has a total of 8 required heatsets, as shown in the illustrations below.



## Z MOTOR PULLEY ASSEMBLY

MICRON

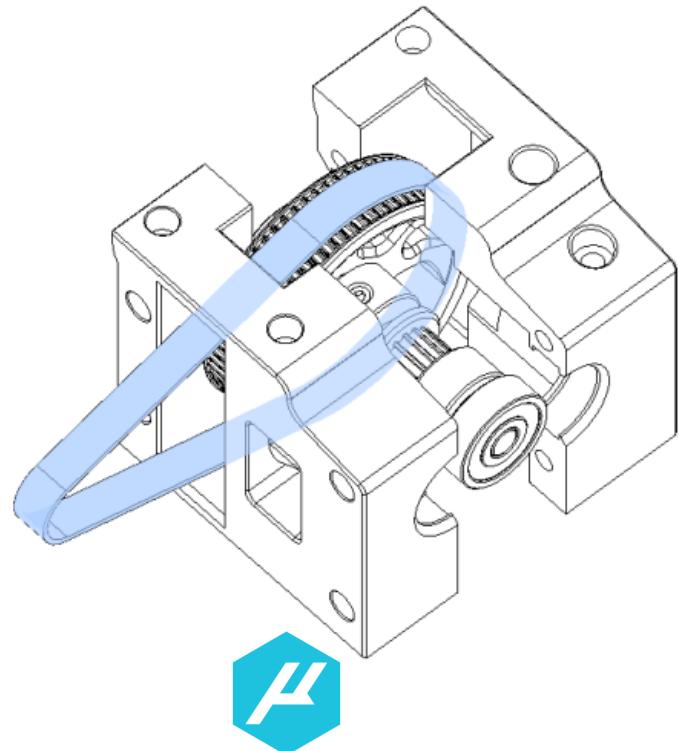


### Z MOTOR PULLEY

To continue with the Z drive assembly, attach a GT2 16T pulley as shown to each of the 4 Z motors. Tighten one of the set screw just tight enough to keep the pulleys from falling off. DO NOT USE LOCTITE AT THIS POINT! We will determine the precise positioning of these pulleys once the motors are mounted to the printer. For now, we are just putting the pulleys in place, so we don't have to slide them on to mounted motors.

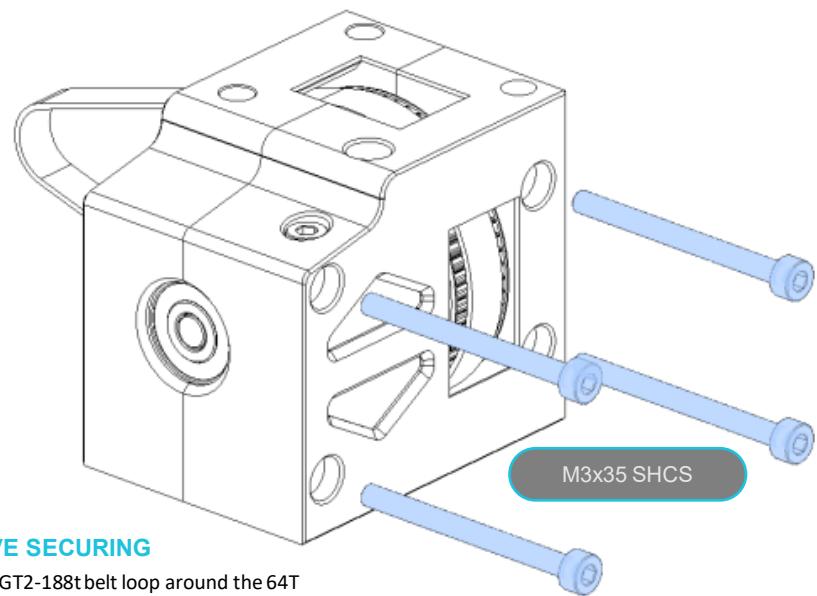
## Z DRIVE ASSEMBLY

MICRON



### Z DRIVE BELT

Add the GT2-188t belt loop around the 64T pulley before closing it off.

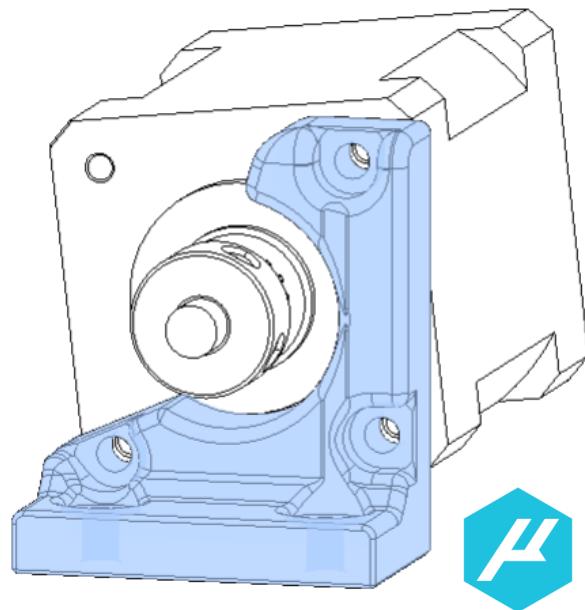


### Z DRIVE SECURING

Add the GT2-188t belt loop around the 64T pulley before closing it off.

## Z MOTOR MOUNT

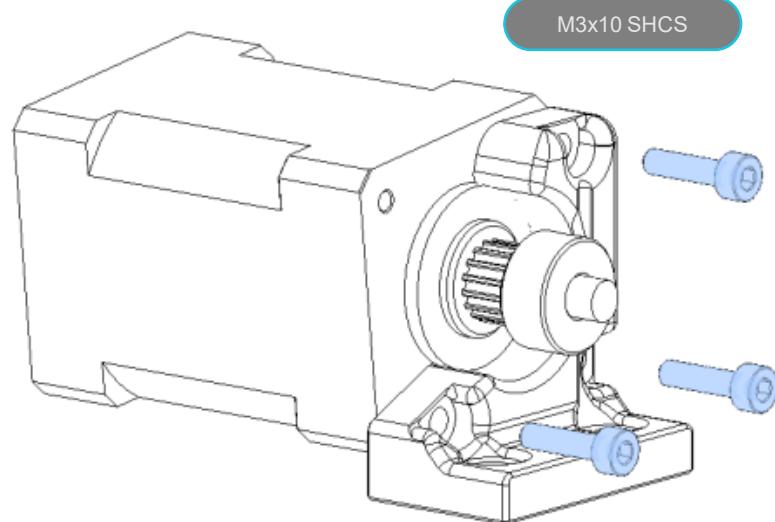
MICRON



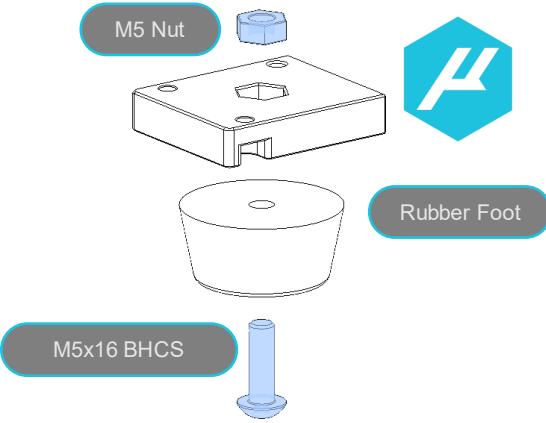
### Z MOTOR MOUNT

Z motor mount is best used with the wires for the z to be facing down or towards the inside of the printer

Note: The motor is on a slight angle in relation to the motor mount.

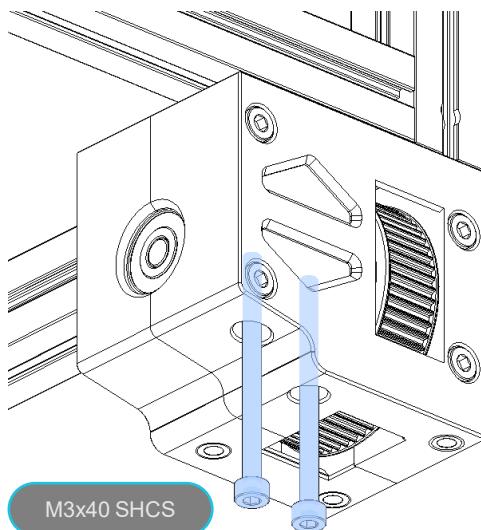


## Z DRIVES MOUNTING



### FEET ASSEMBLY

To assemble the Z drive cap / feet, you need to insert an M5 nut into the drive cover



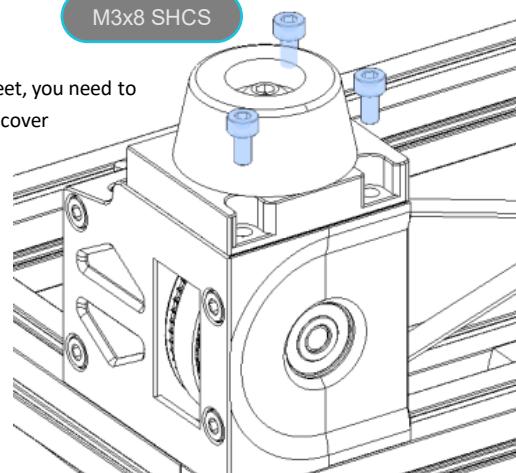
### Z DRIVE MOUNT

Z Drive is mounted using the new M3x40 bolts. If you installed the printed NDN nut holder then this is where you will use that to secure the drive housing.

MICRON

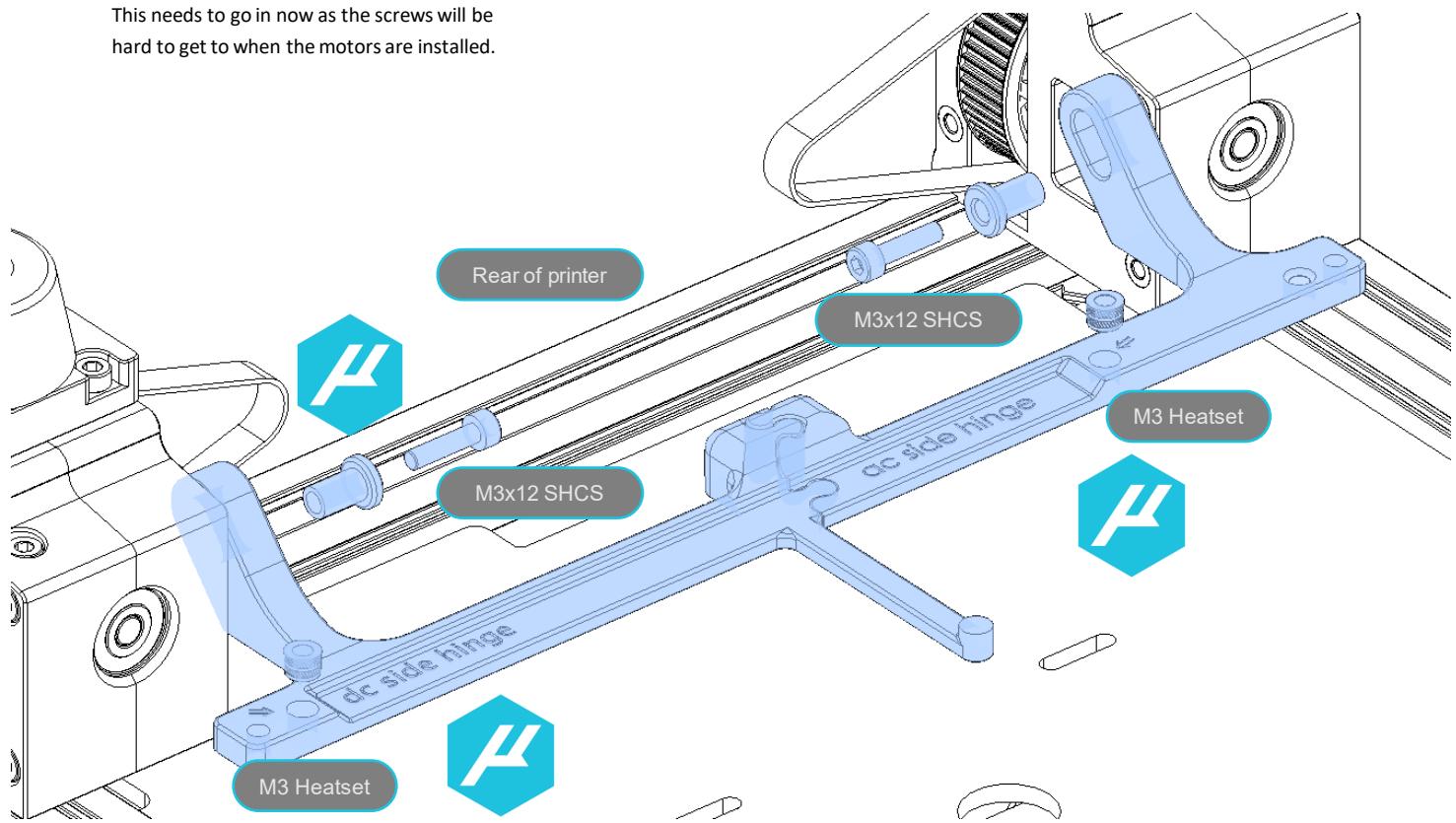
### FEET ASSEMBLY

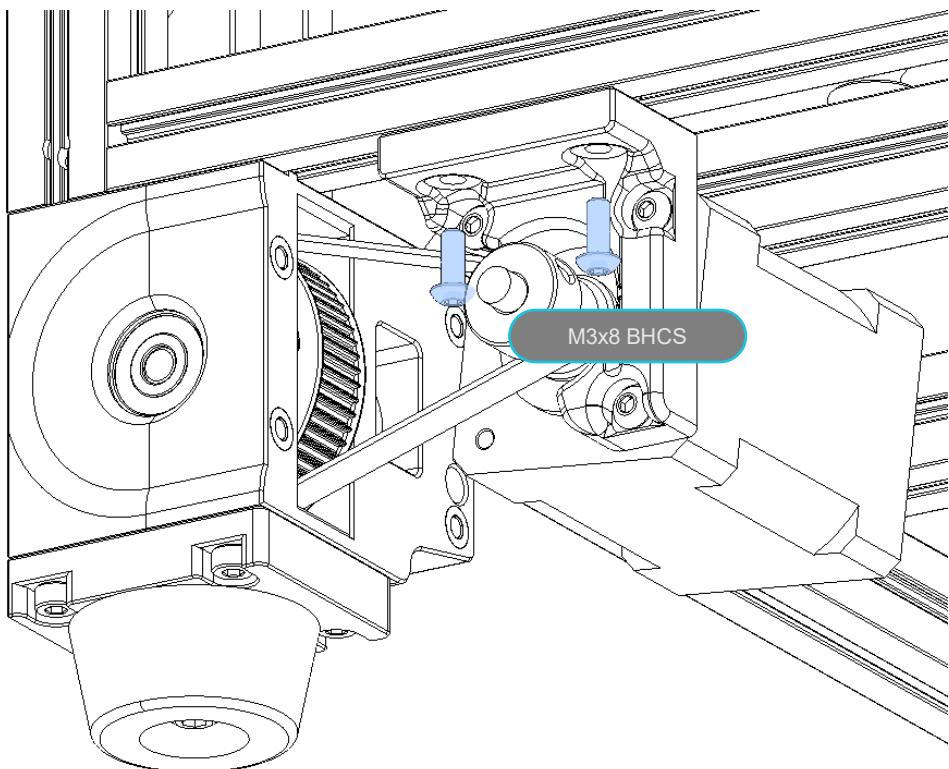
To assemble the Z drive cap / feet, you need to insert an M5 nut into the drive cover



**ELECTRONICS HINGED MOUNT**

This needs to go in now as the screws will be hard to get to when the motors are installed.





### PRELOAD POSITIONS

Before installing the Z motors, take note of the 8 preloaded nuts in the slot to which we are mounting them. 4 of these nuts will be used to mount the Z motors. The position of the remaining 4 nuts is critical to finishing the assembly. When you have the motors mounted, you want one nut between each motor and its Z drive, and two nuts in the center, between the two motors. These 4 nuts will be used to secure the skirts later in the assembly.

### Z MOTOR MOUNTING

Using 2 M3x8 BHCS attach the Z motor. This is when you will tension the 188 tooth belt loop.

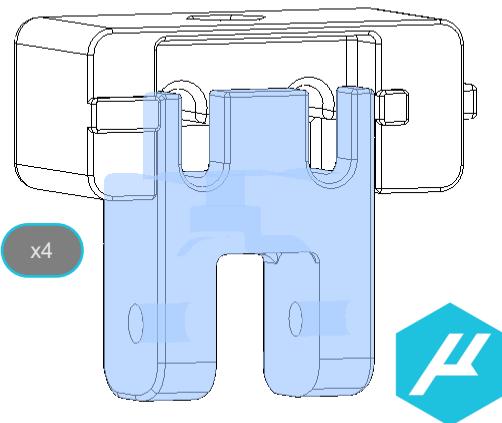
Z IDLERS

MICRON



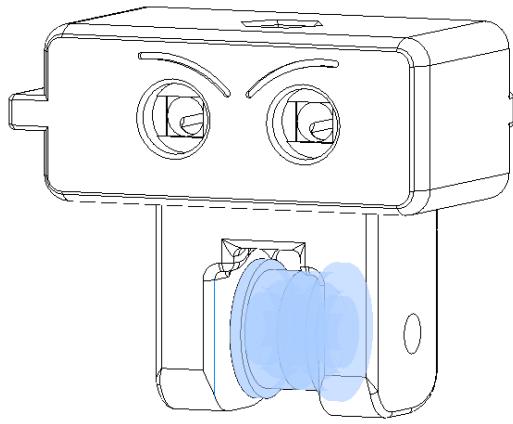
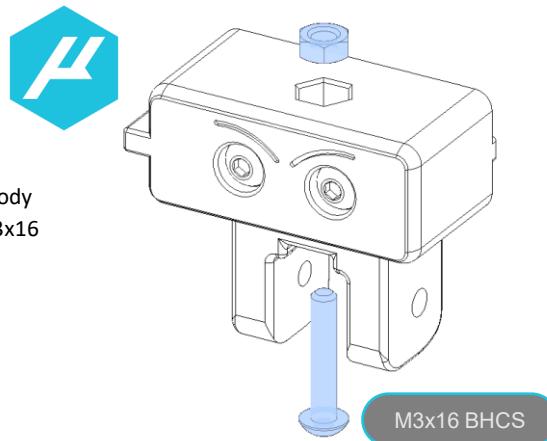
## Z IDLERS

MICRON



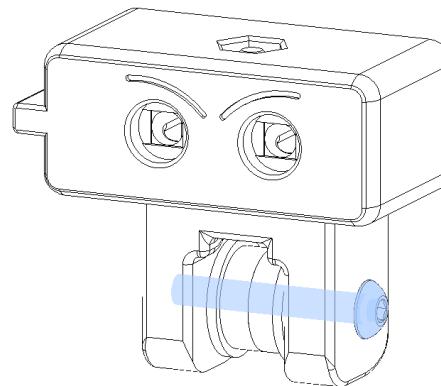
## Z TENSIONER

Slide the tensioner into the main body securing them together with an M3x16 BHCS and M3 hex nut.

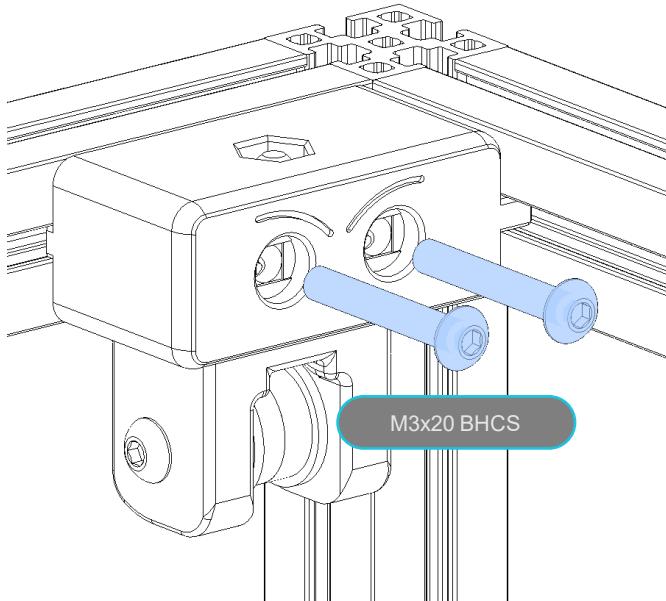


## Z TENSIONER PULLEY

Take the F623 bearing stack and place them between the idler securing them using an M3x20. Note the direction the screw is going.



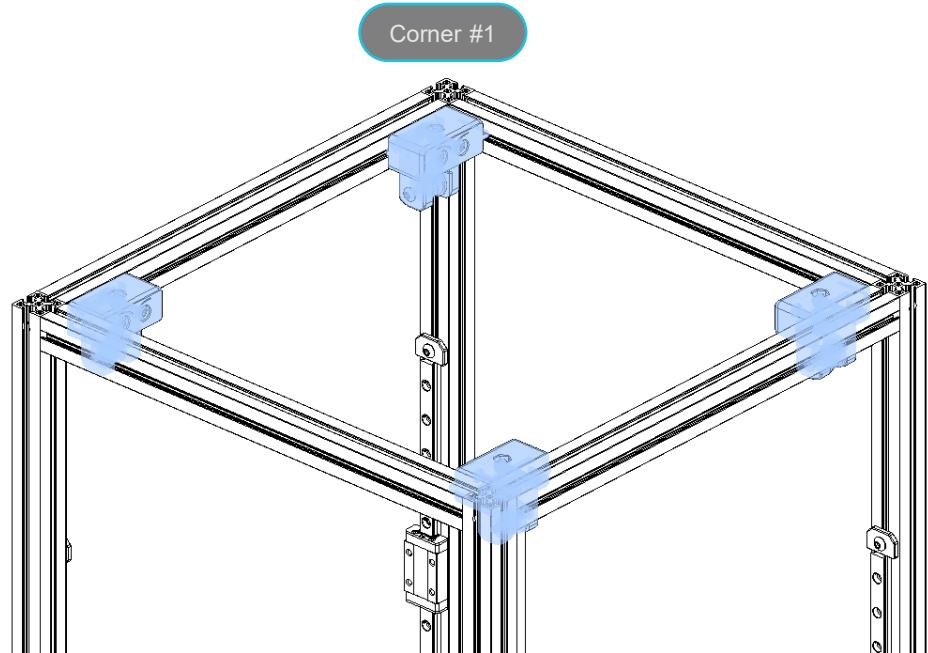
## Z IDLERS



### Z IDLER MOUNTING

mounting the Z idlers on the top of the frame along the side extrusion. These can be mounted using the printed nut holders as well.

## MICRON



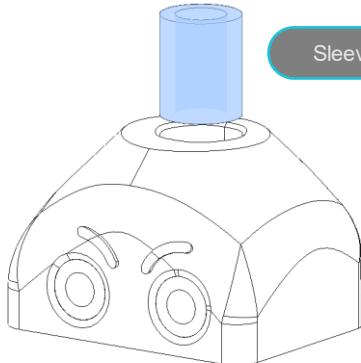
Z ENDSTOP

MICRON

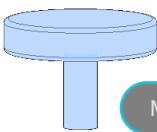
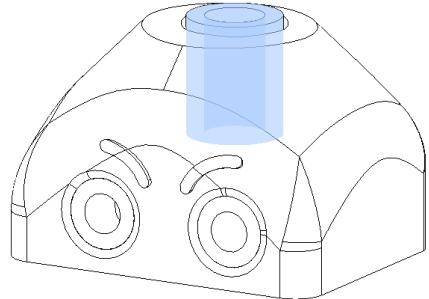


## Z ENDSTOP ASSEMBLY

MICRON

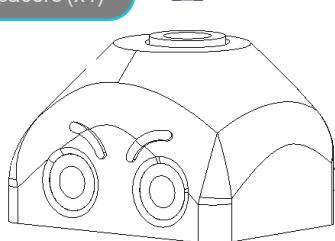


Sleeve Bearing

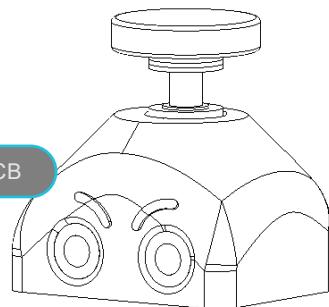


M4 Thumbscrew

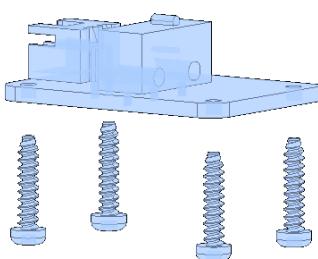
M4 Spacers (x4)



Z Endstop PCB



5mm Binding Post Screw

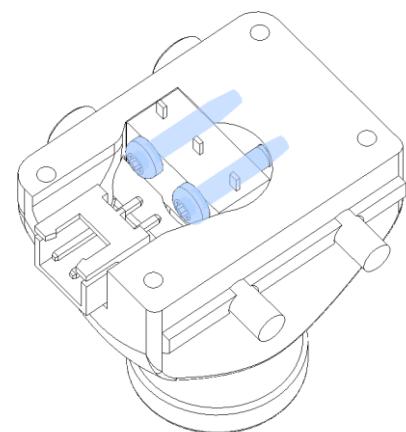


M2x10 Self Tapping screws

### Z Endstop PCB/ No PCB

The endstop housing supports both Non-PCB and PCB endstops there are 2 ways of assembling it. With the PCB you attach the PCB with 4 m2x10 screws on each corner , with the non PCB you screw the switch in with 2 m2x10 screws through the switch

M2x10 Self Tapping screws



## BED HEATER

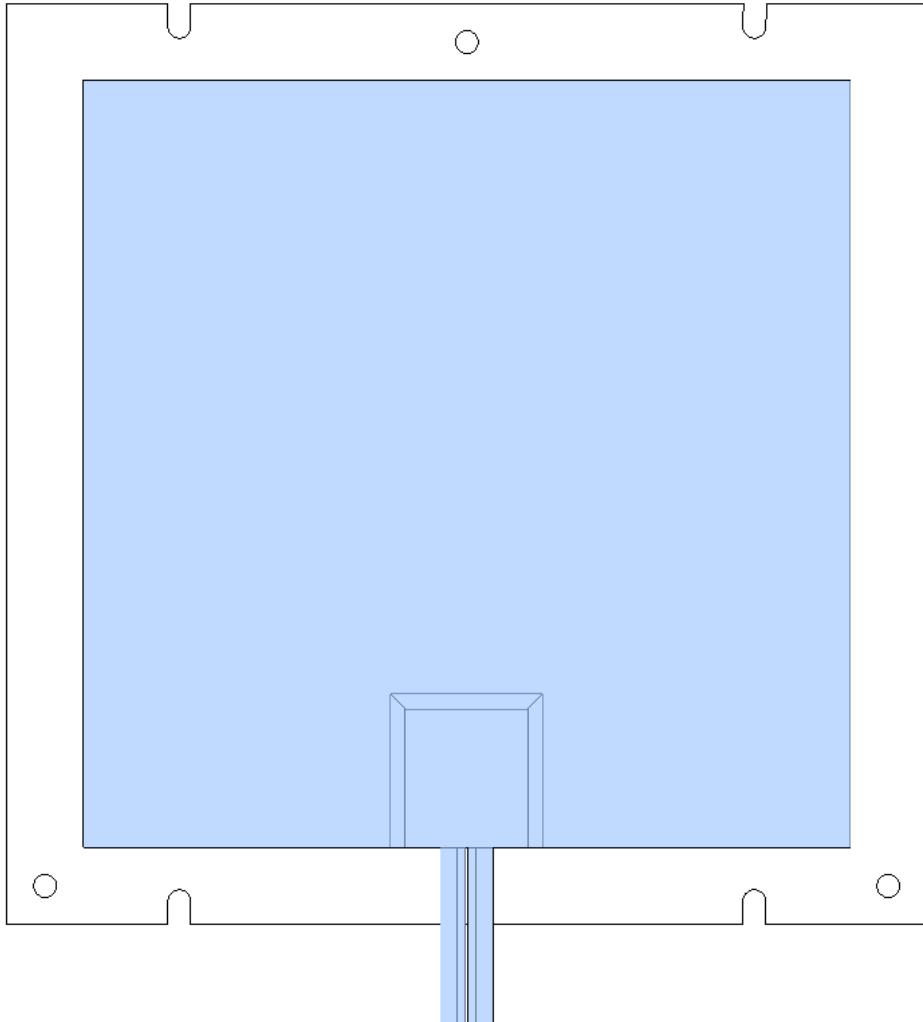
MICRON

### BED HEATER

The bed uses a silicone heater this can be powered by either AC mains voltage or DC 24v. Make sure if you use an AC mains voltage bed to add a ground wire as well as a thermal fuse in line on the L line of the mains wiring.

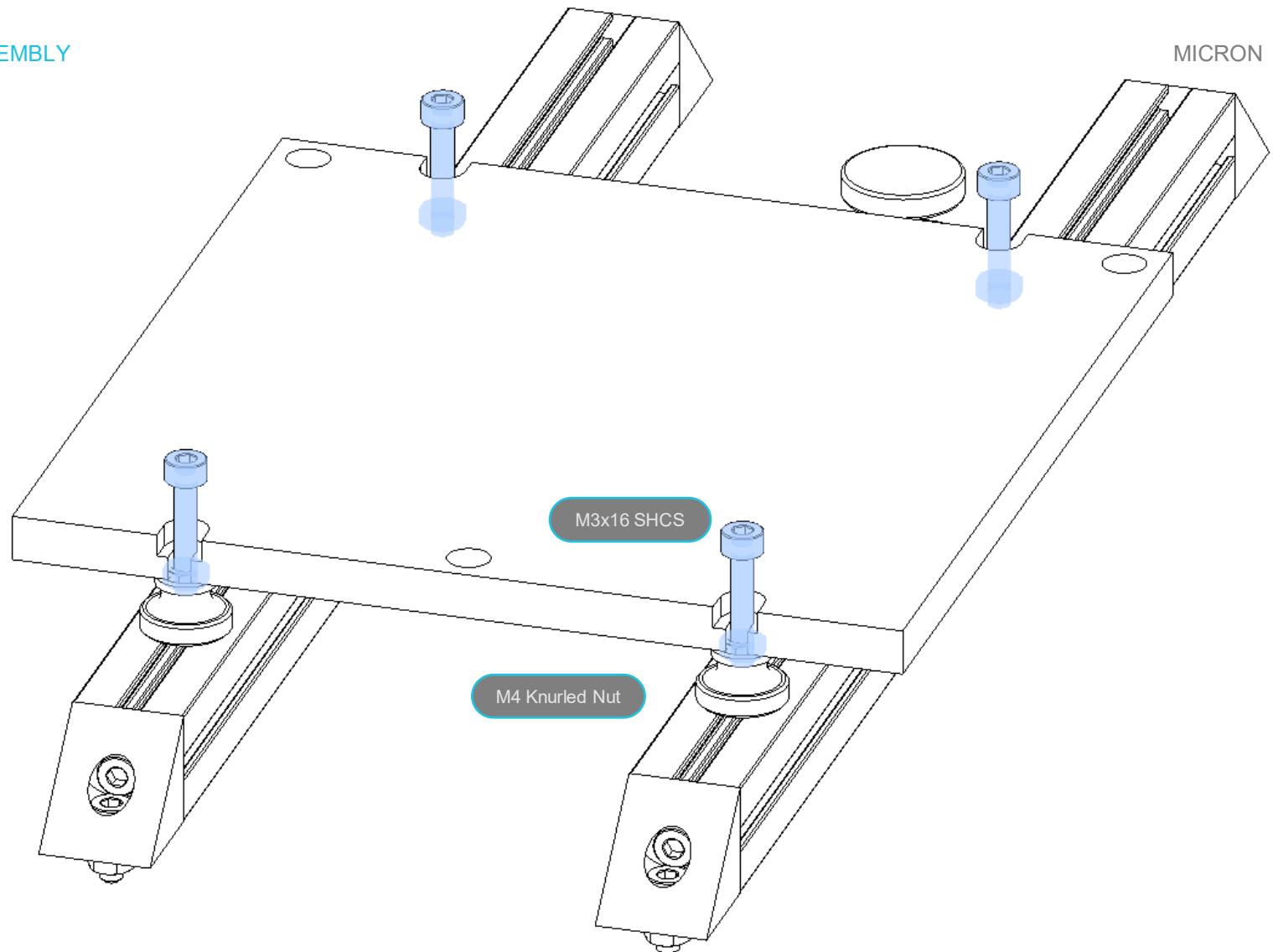
### THERMAL FUSE

If you are using an AC mains bed, it is recommended to install a thermal fuse. If you are using DC 24v bed thermal fuse is optional.



BED ASSEMBLY

MICRON

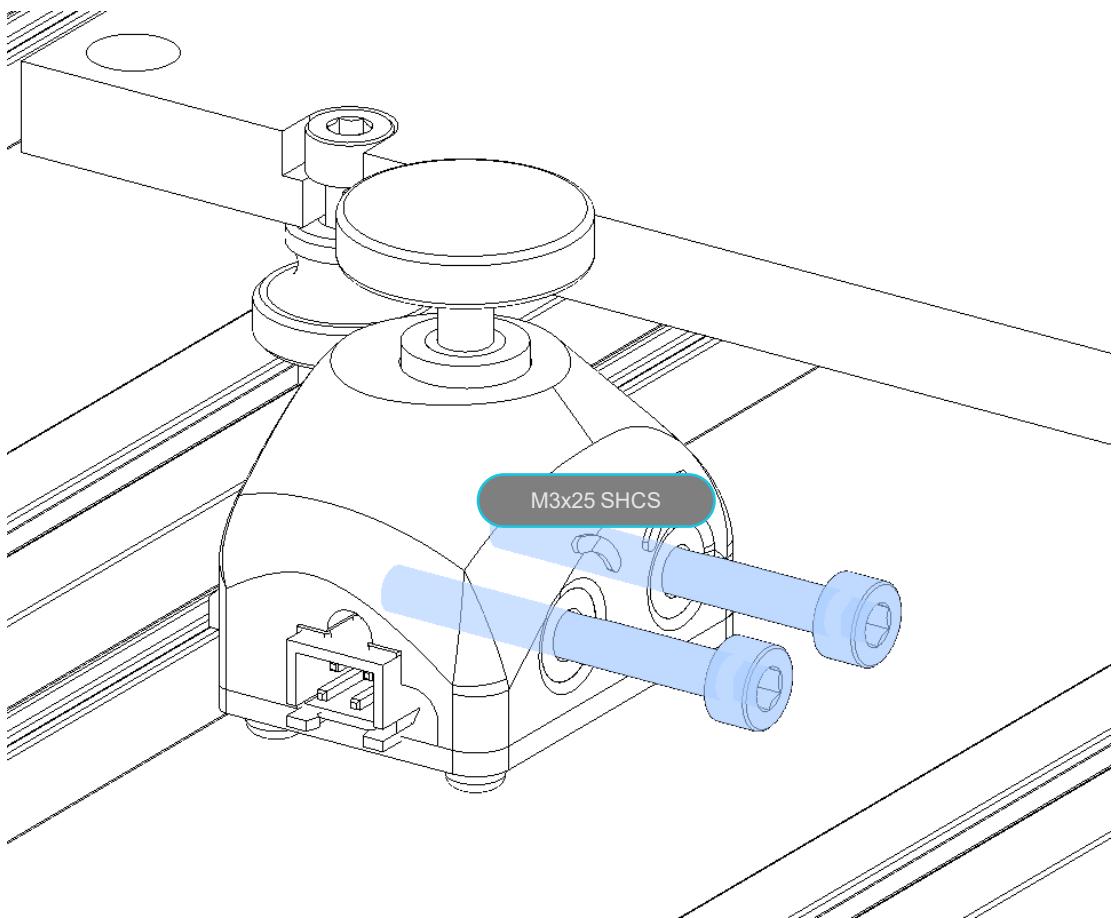


## Z ENDSTOP MOUNTING

MICRON

### Z ENDSTOP MOUNTING

Mount the Z endstop along the inside of the right bed extrusion, doesn't really matter exactly where, as you will finalize that later with the firmware.



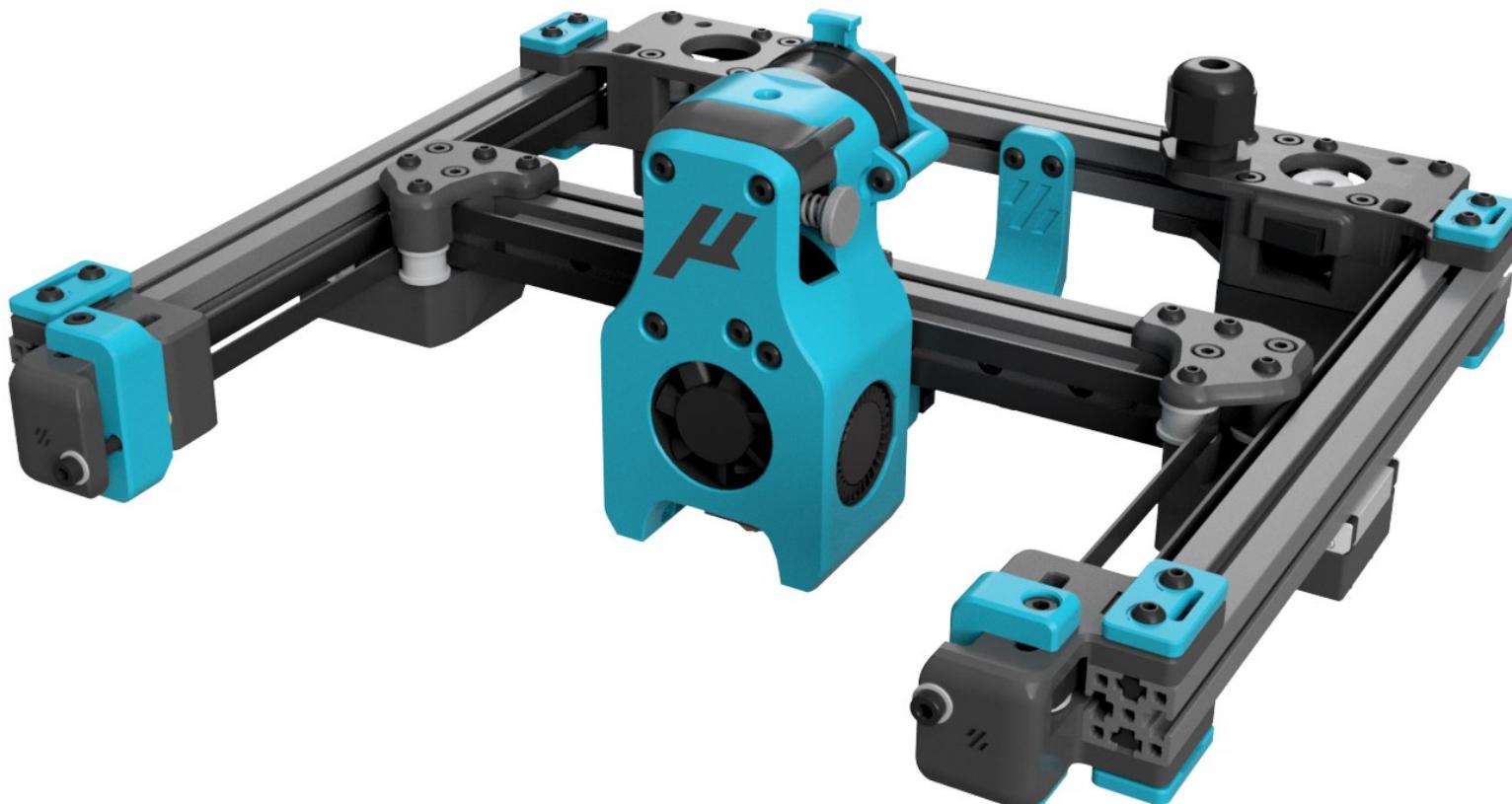
FRAME

MICRON



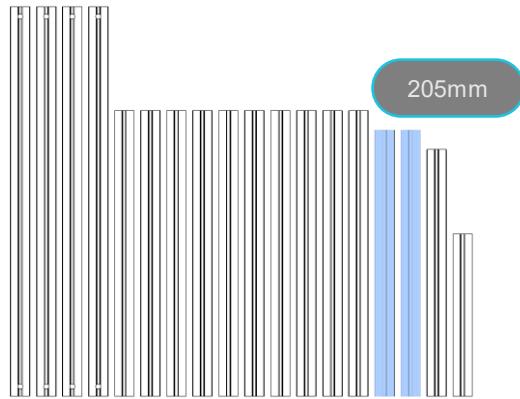
GANTRY

MICRON

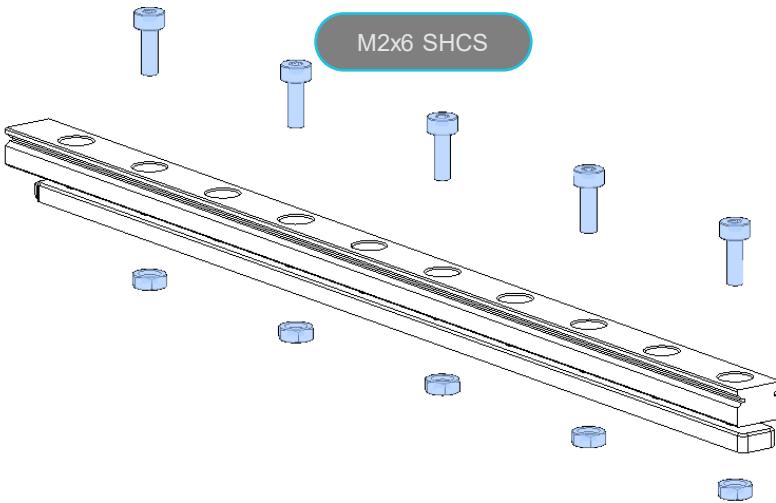


## Y AXIS LINEAR RAILS

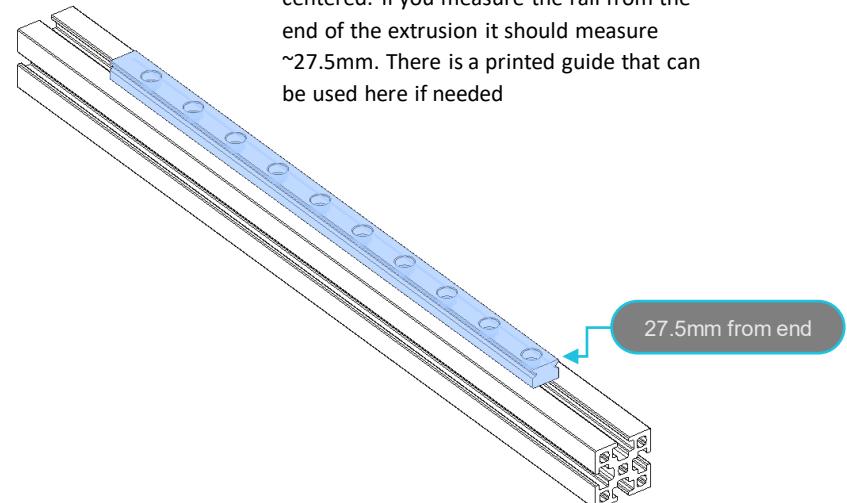
MICRON



205mm



M2x6 SHCS



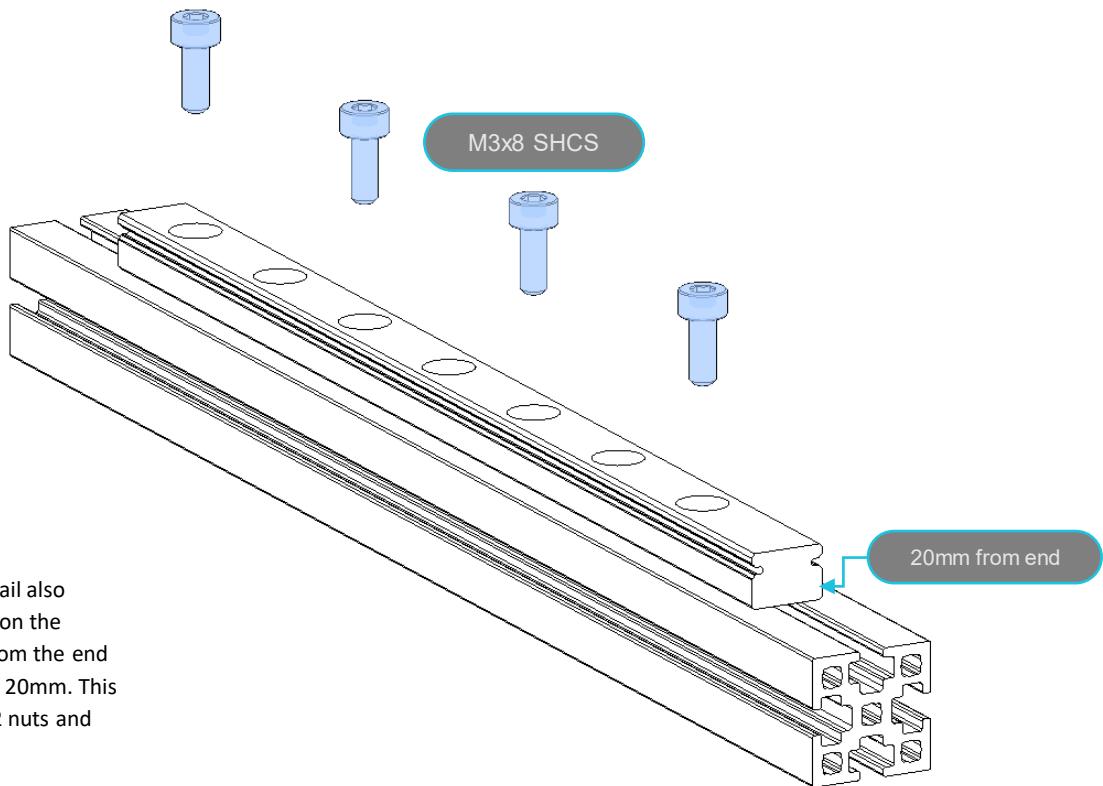
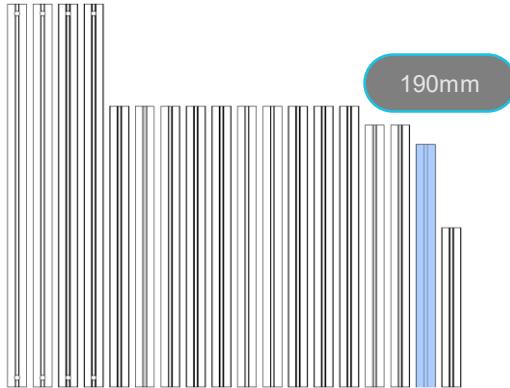
27.5mm from end

## Y AXIS LINEAR RAILS

There are 2 linear rails on the Y-axis mounted to the 205mm long extrusions and they both need to be exactly in the centered. If you measure the rail from the end of the extrusion it should measure ~27.5mm. There is a printed guide that can be used here if needed

## X AXIS LINEAR RAIL

MICRON

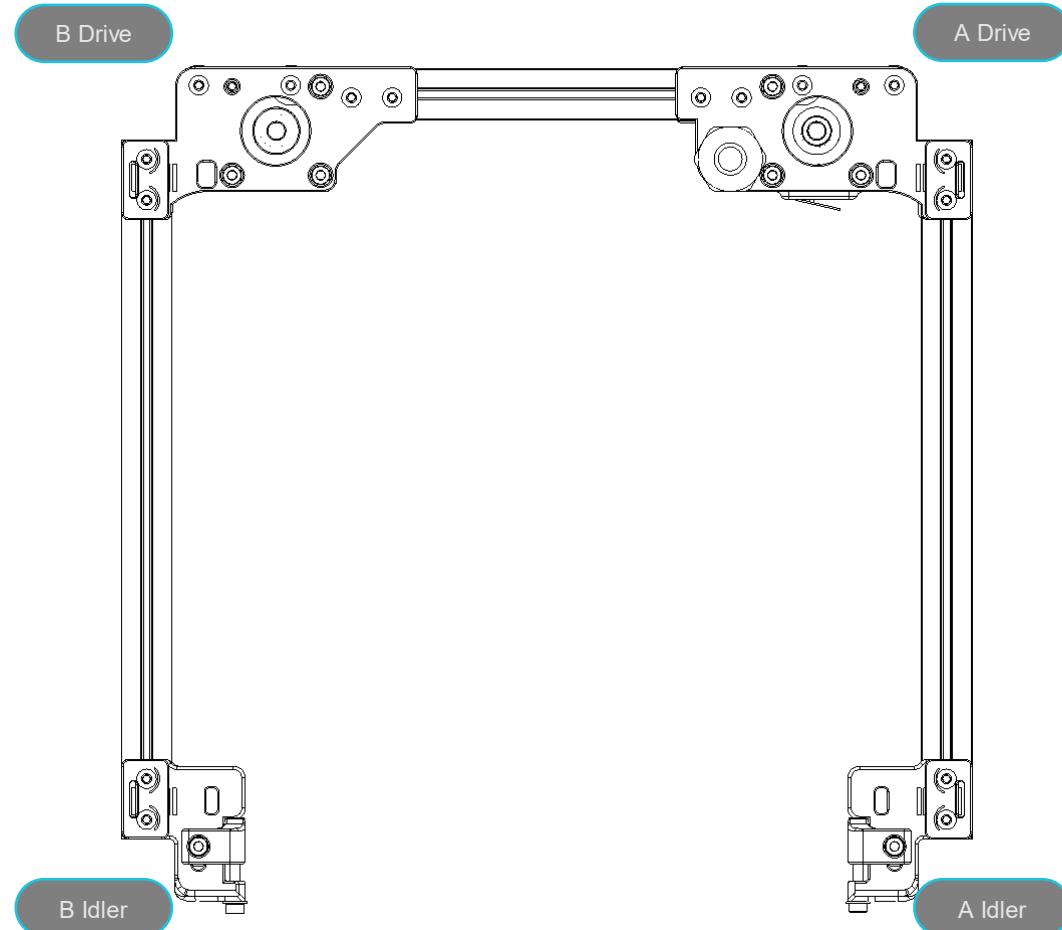


### X Axis Linear Rail

As with the Y linear rail , the X rail also needs to be perfectly centered on the extrusion. The measurement from the end of the rail to end of extrusion is 20mm. This uses M3 Nuts instead of the m2 nuts and printed nut bar

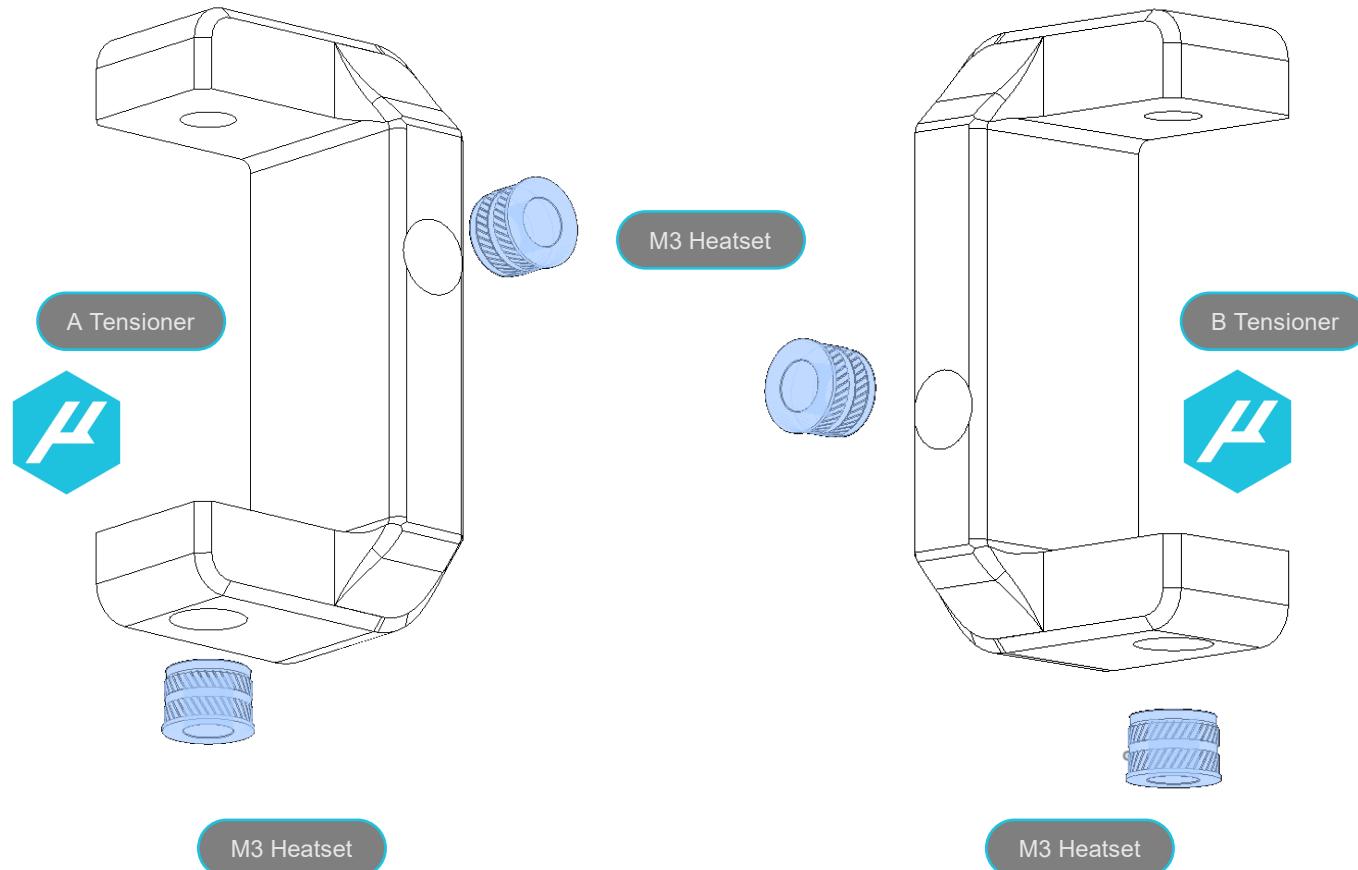
## GANTRY FRAME OVERVIEW

MICRON



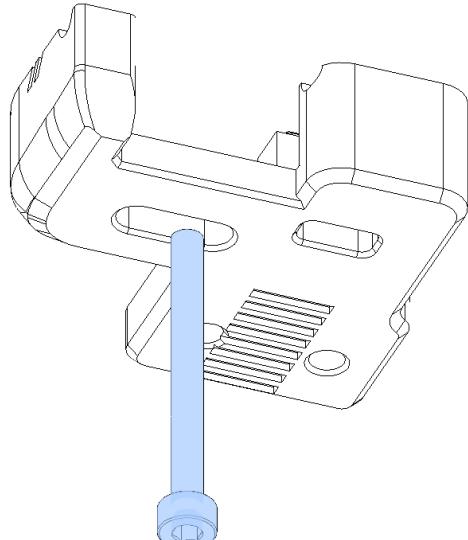
A/B IDLERS

MICRON

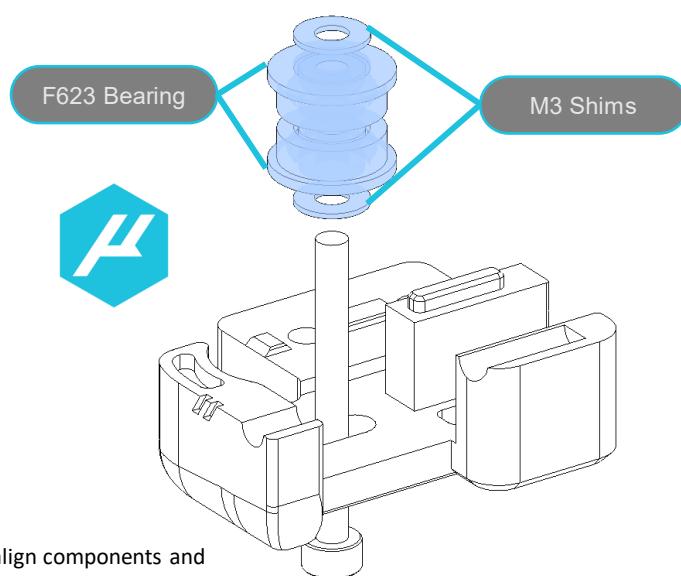


## A/B IDLERS

MICRON

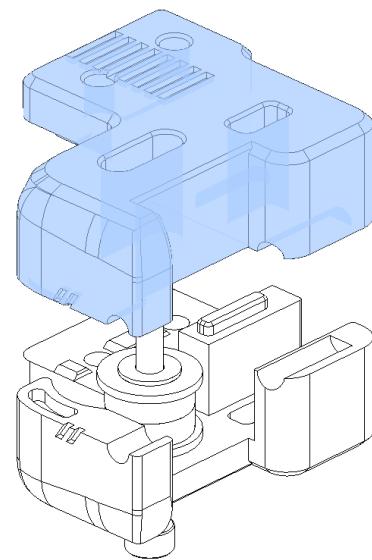


M3x30 SHCS



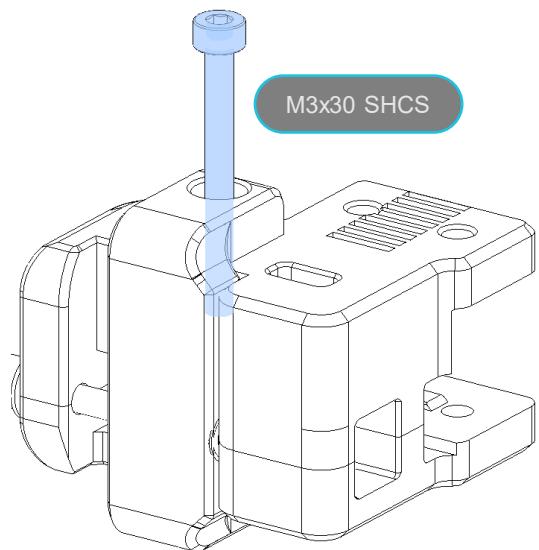
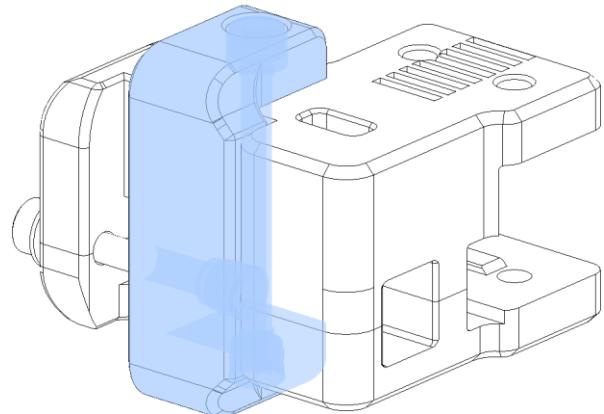
### ASSEMBLY AID

This screw is used to align components and will be removed in a later step



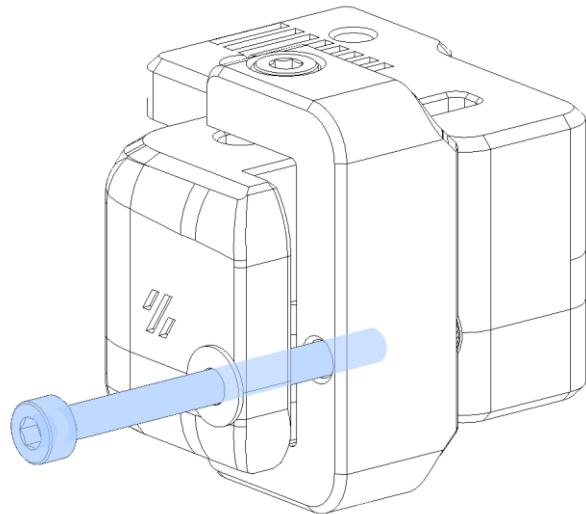
A/B IDLERS

MICRON



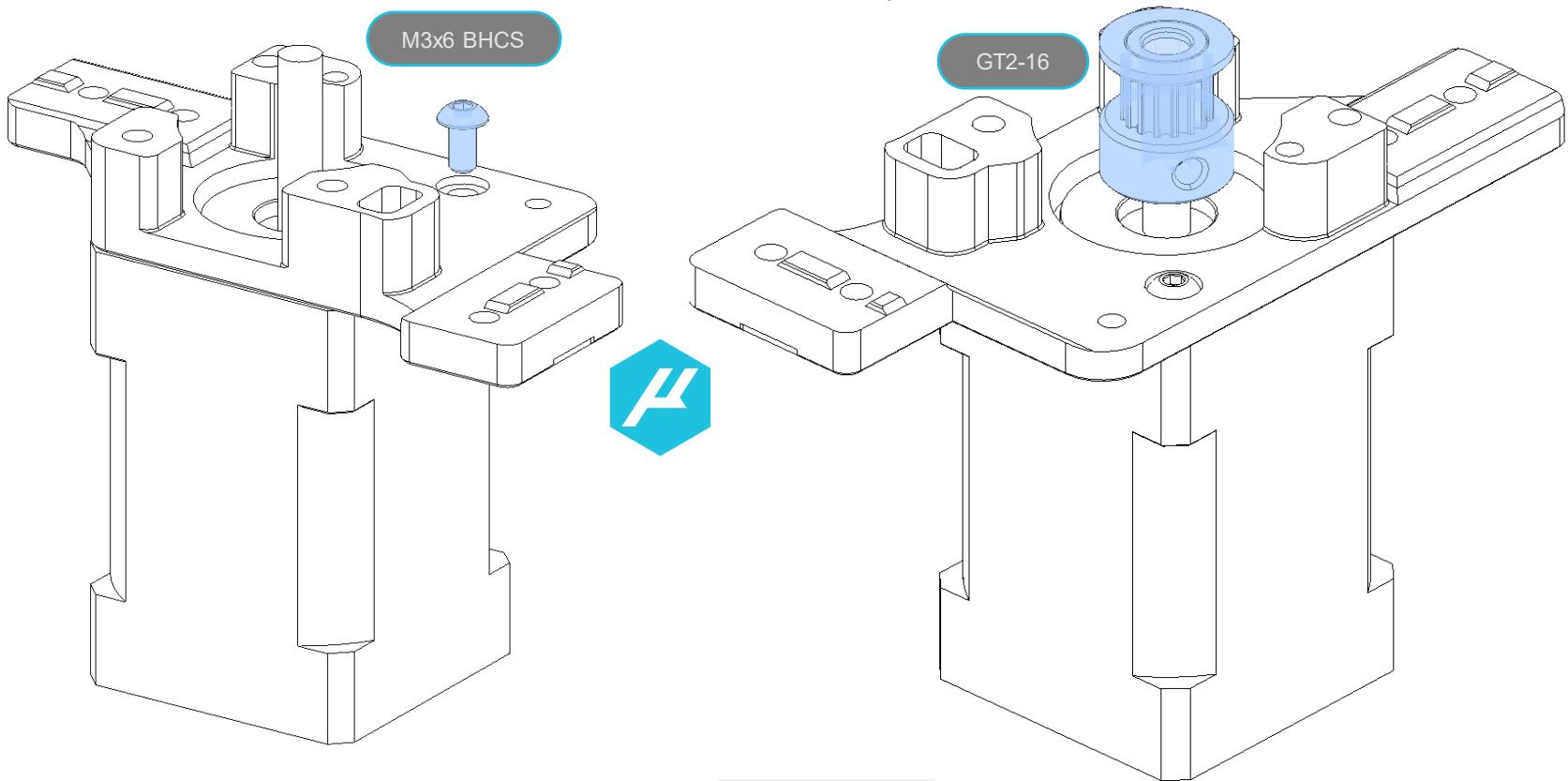
#### REMOVE ASSEMBLY AID

Remove the assembly aid screw as you insert the tensioner screw and slide the tension arm into place.



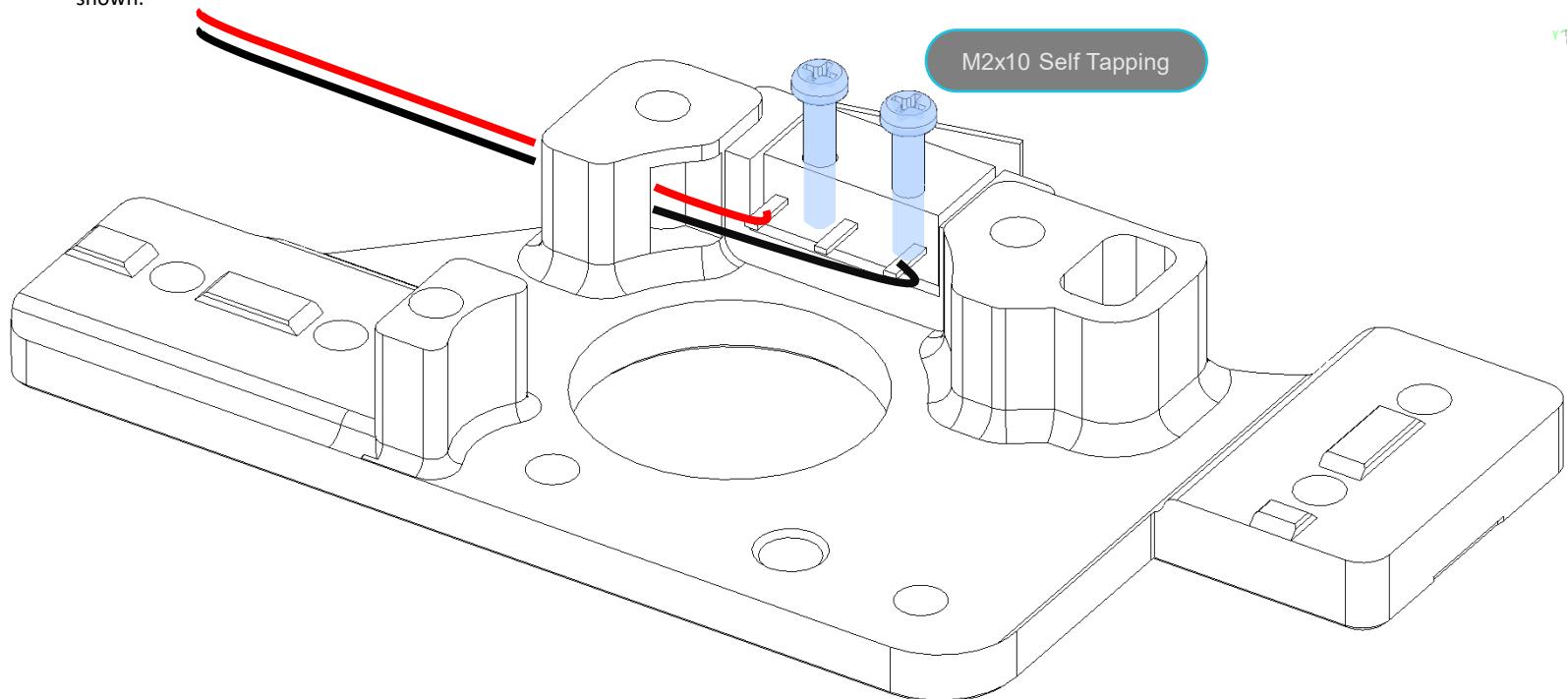
**A MOTOR PULLEY**

To attach the A drive stepper, orient the motor so the wiring is facing in towards the middle of the printer . Using 1 m3x6 BHCS to secure the stepper to the lower half of the A drive. Install a GT2-16 tooth pulley on the stepper as shown. Don't tighten it down just yet until you run the belts later in the assembly.



**A DRIVE UPPER / Y ENDSTOP**

Start by installing the Y endstop switch into the upper A drive, securing it with 2 m2x10 self tapping screws. Insert 2 wires into the hole next to the microswitch and solder them to the 2 outer pins as shown.

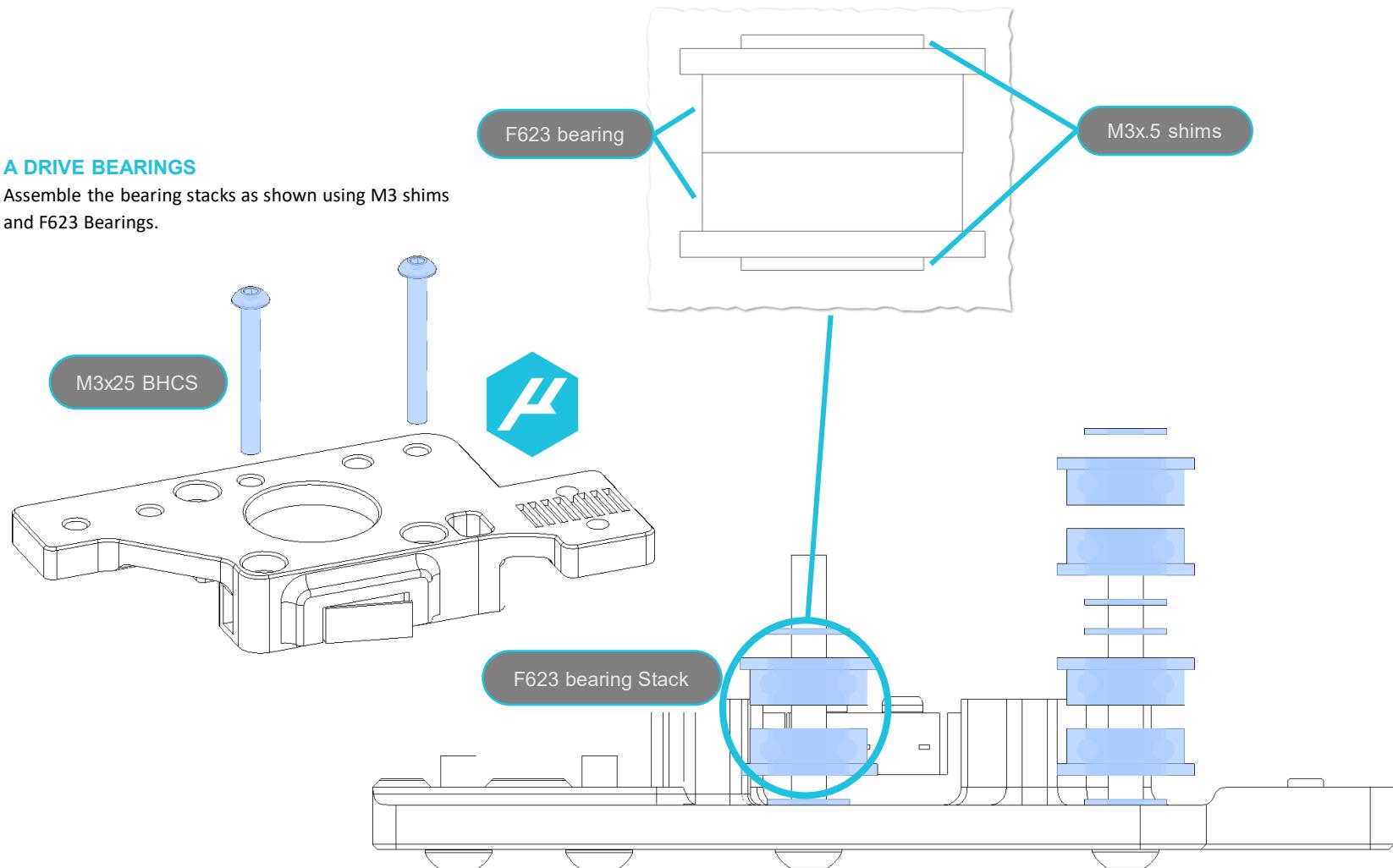


## A DRIVE CONTINUED

MICRON

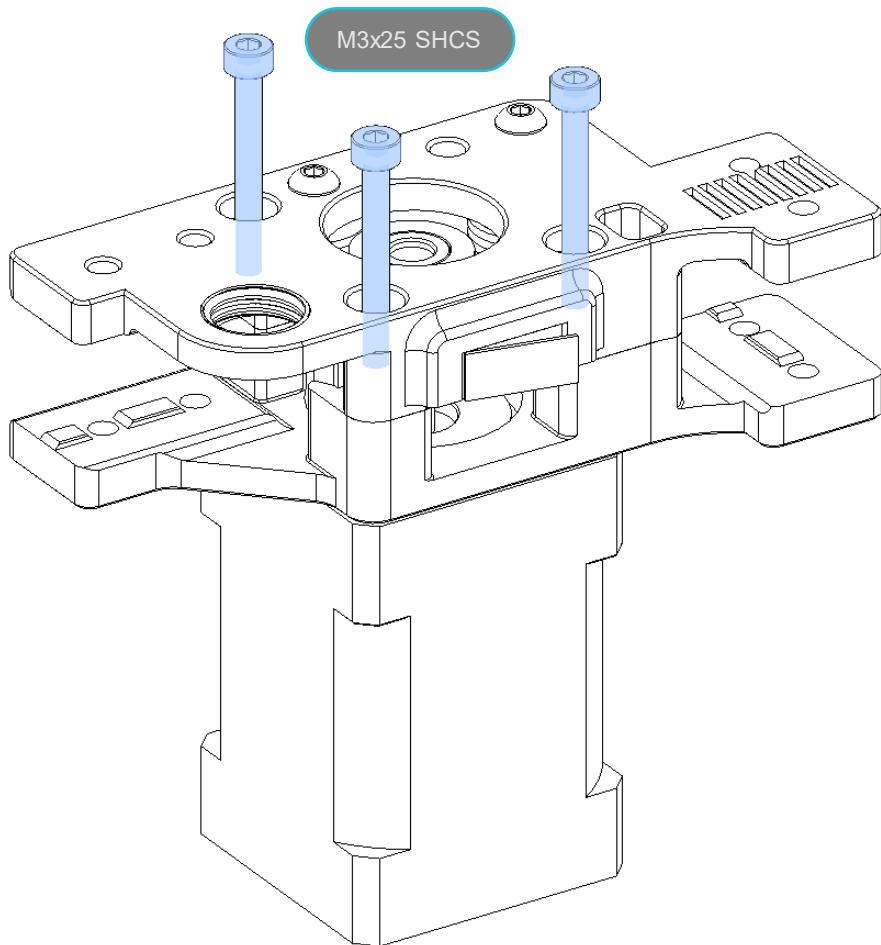
### A DRIVE BEARINGS

Assemble the bearing stacks as shown using M3 shims and F623 Bearings.



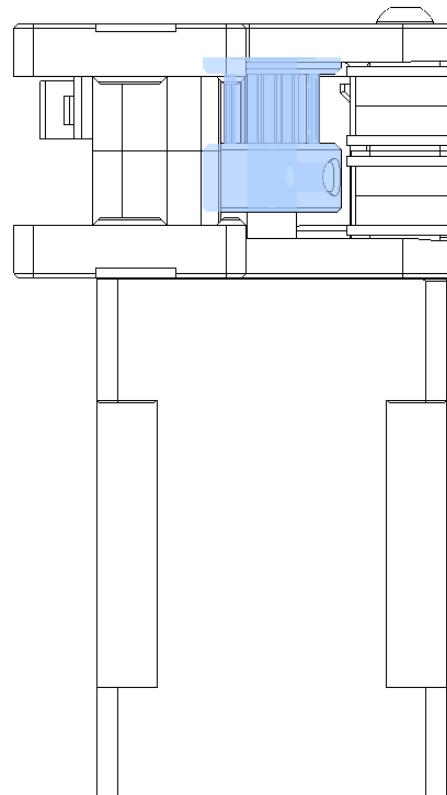
## A DRIVE CONTINUED

MICRON



## A DRIVE PULLEY

Now is time to align the drive pulley with the top bearings and tighten the grub screw.

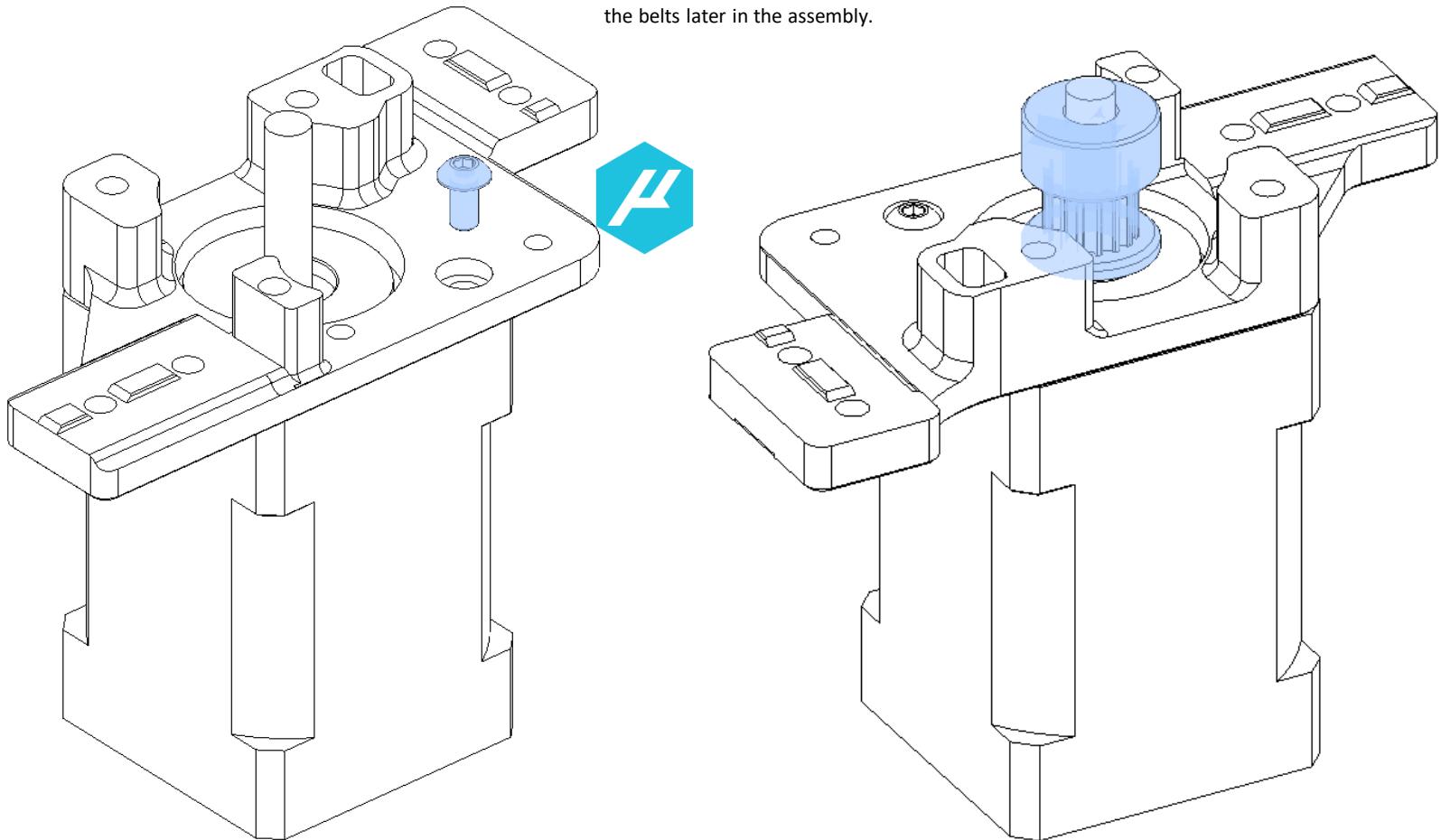


## B DRIVE

### B MOTOR PULLEY

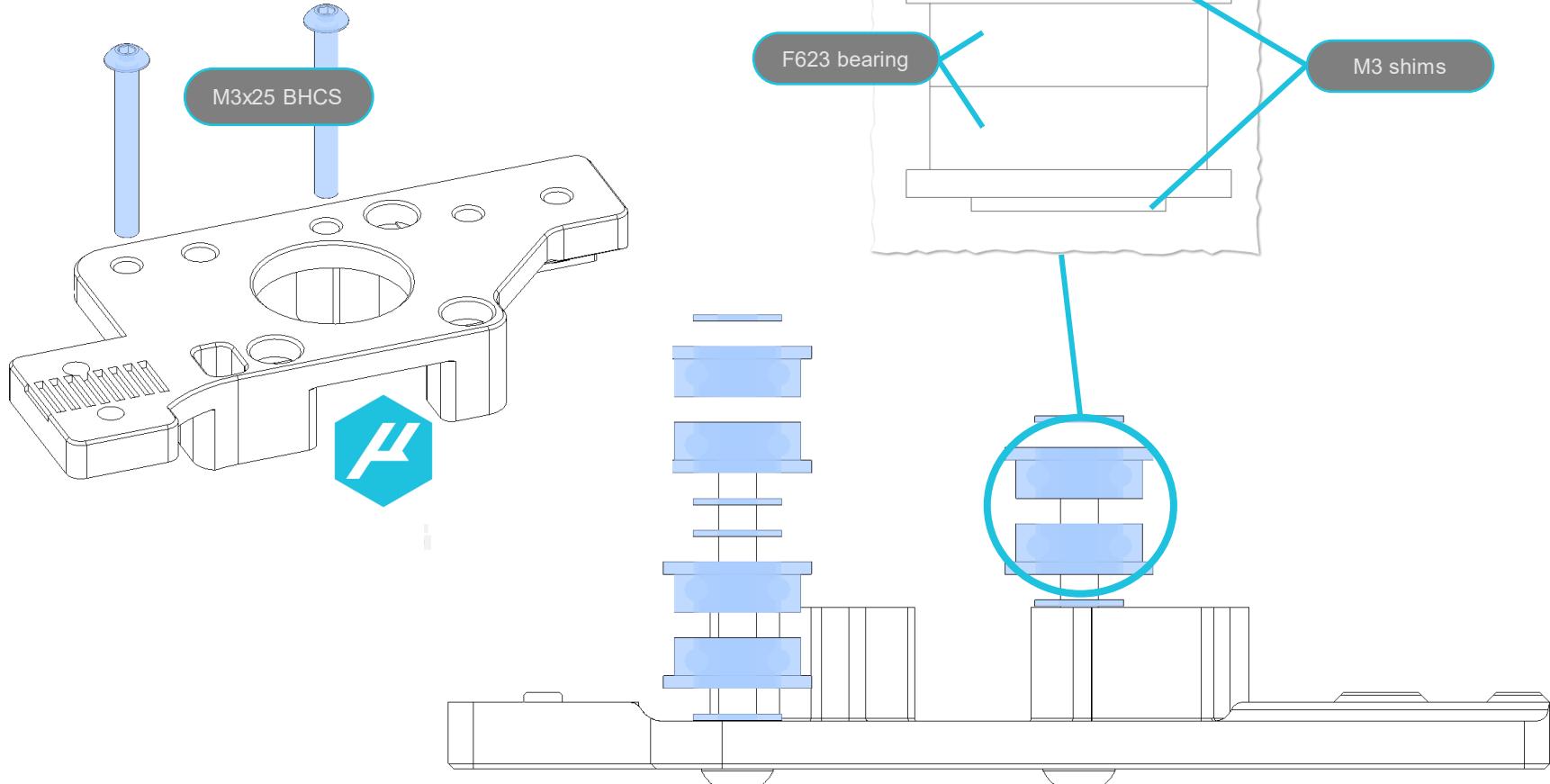
MICRON

To attach the B drive stepper, orient the motor so the wiring is facing in towards the middle of the printer . Using 1 m3x6 BHCS to secure the stepper to the lower half of the B drive. Install a GT2-16 tooth pulley on the stepper as shown. Don't tighten it down just yet until you run the belts later in the assembly.

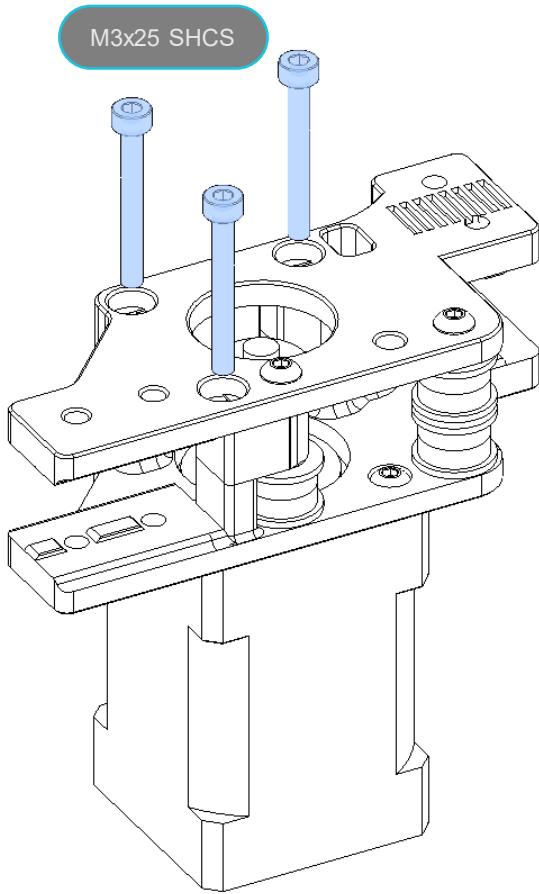


**B DRIVE BEARINGS**

Assemble the bearing stacks as shown using M3 shims  
and F623 Bearings



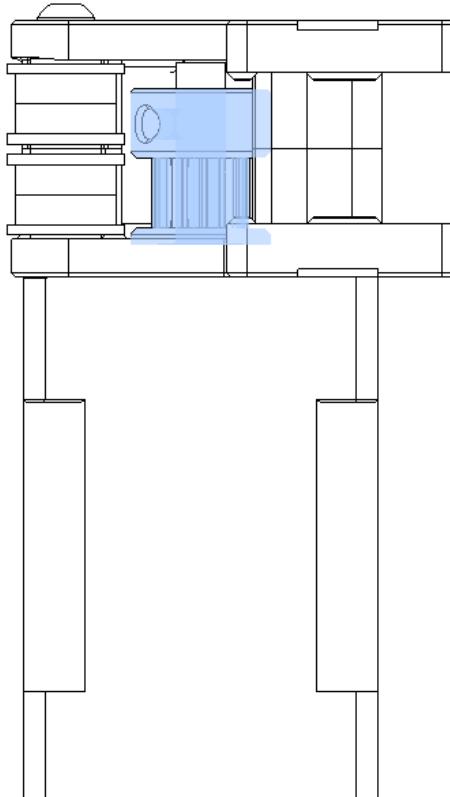
FRAME



MICRON

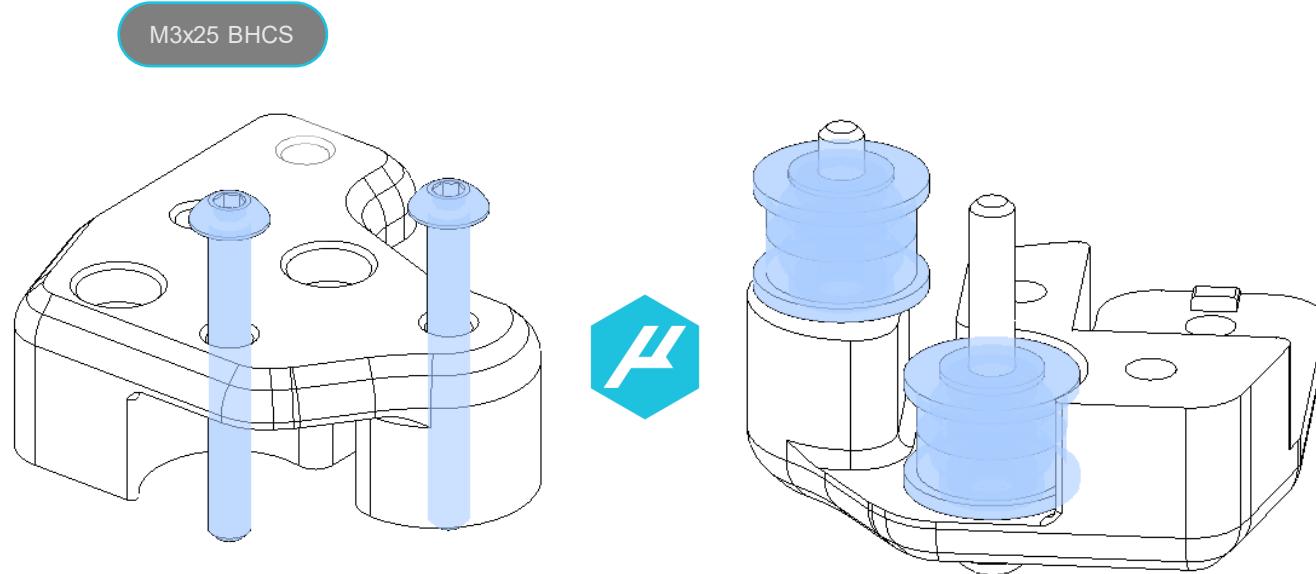
### B DRIVE PULLEY

Now is time to align the drive pulley with the top bearings and tighten the grub screw.



## LEFT XY JOINT ASSEMBLY

MICRON

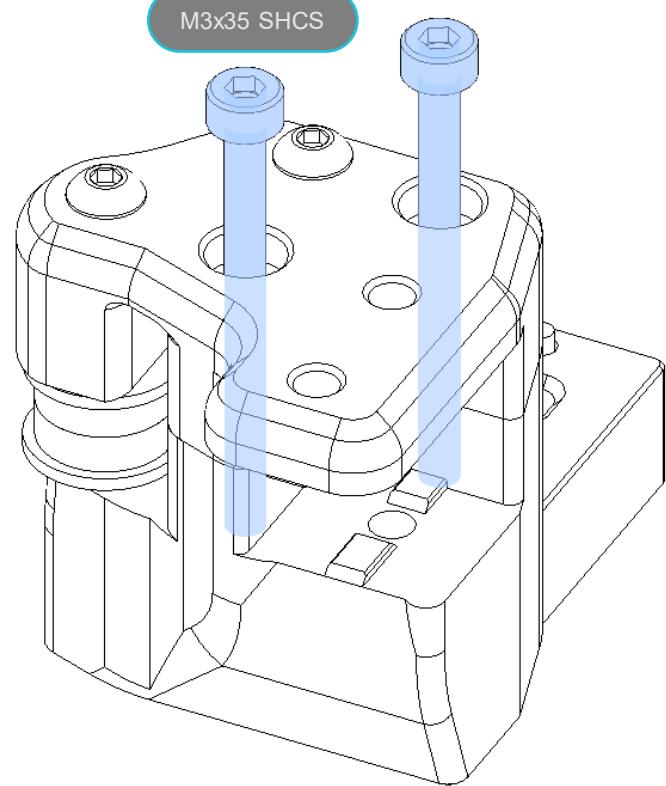
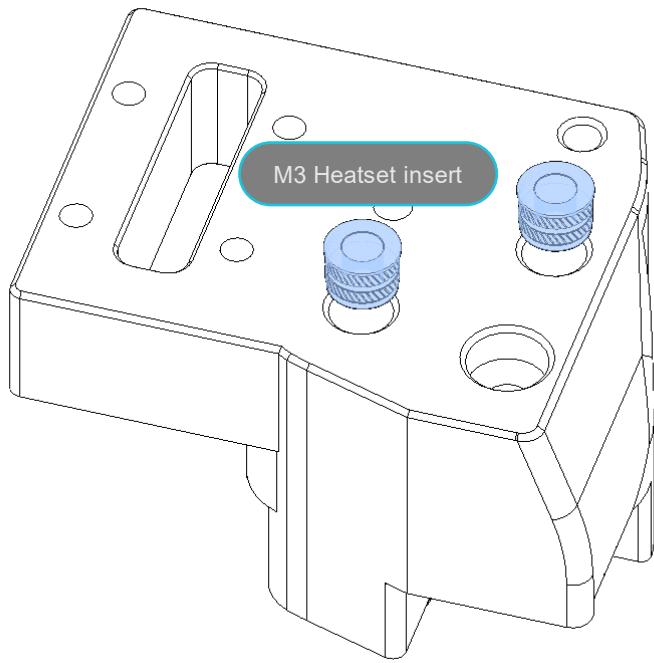


### LEFT XY JOINT BEARING STACKS

See previous examples for how to assemble these. We use the same bearings and fasteners used in other steps.

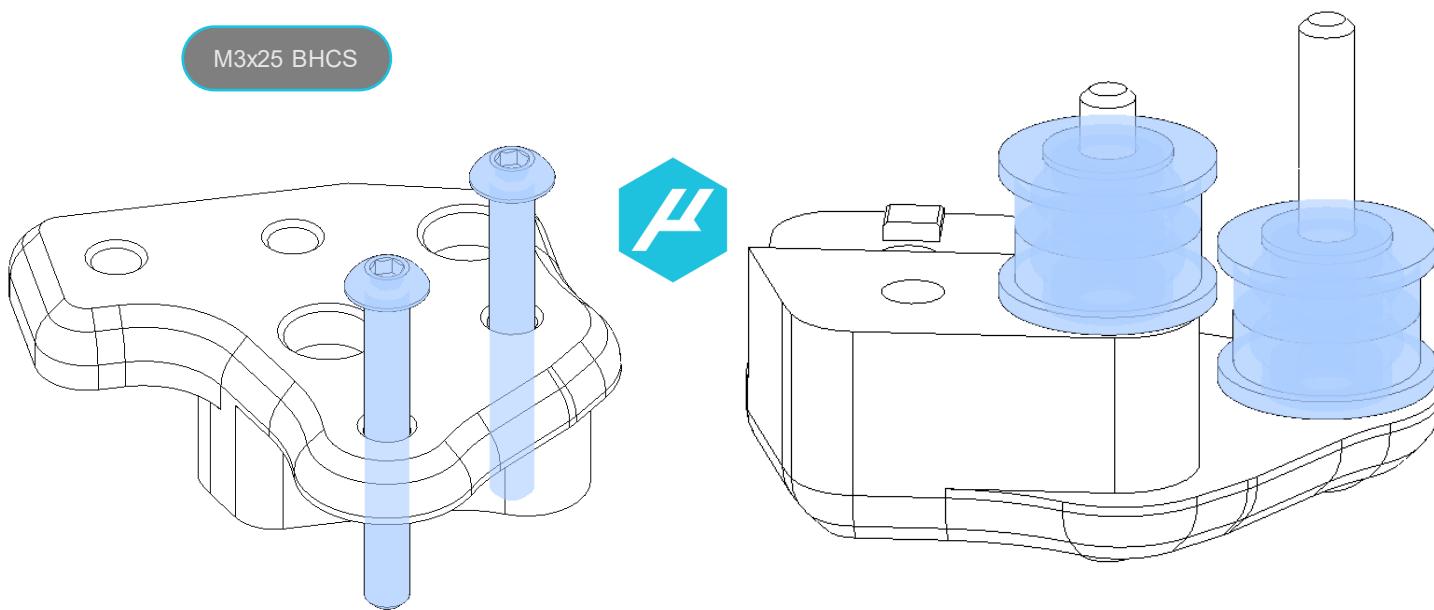
## LEFT XY JOINT CONTINUED

MICRON



## RIGHT XY JOINT

MICRON

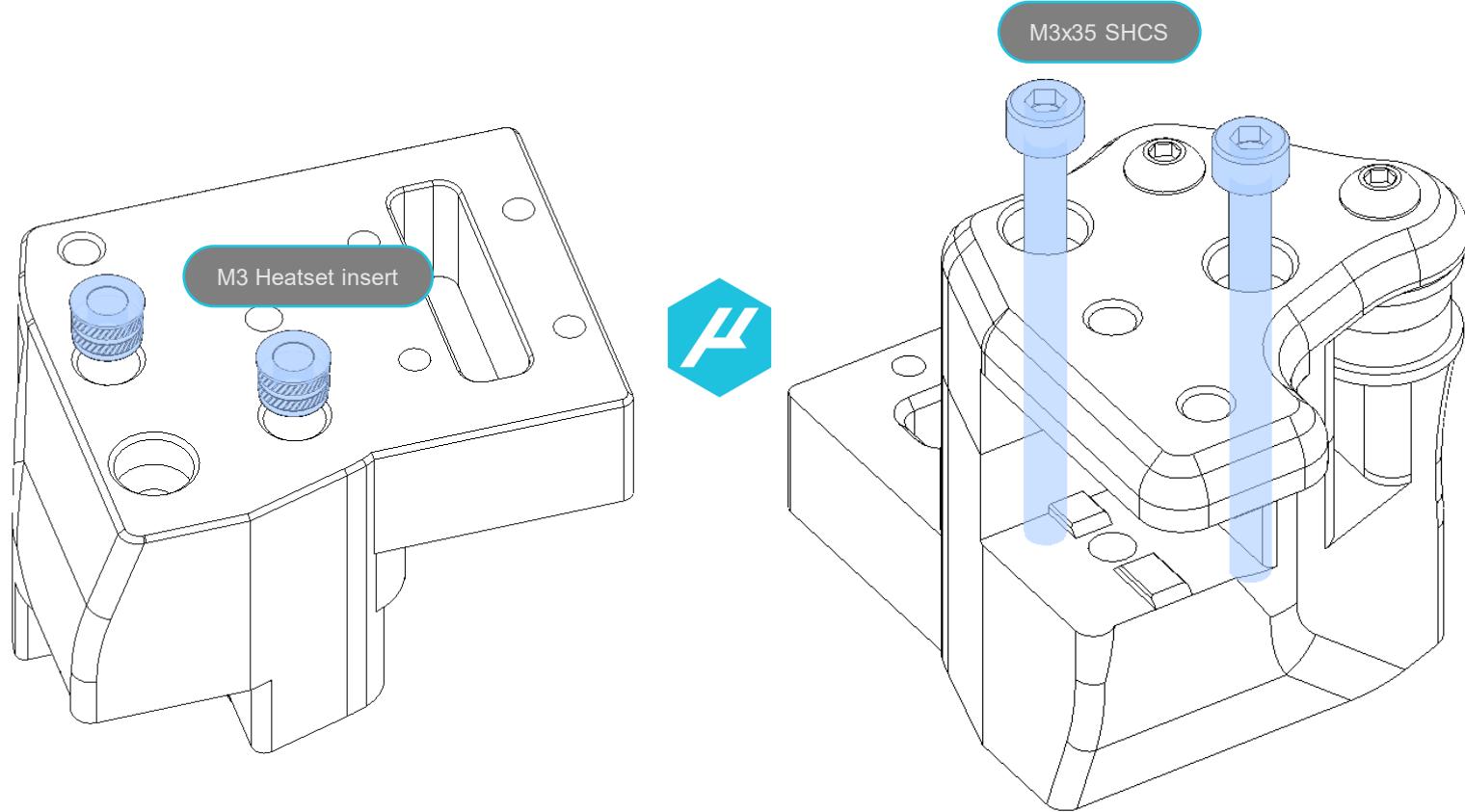


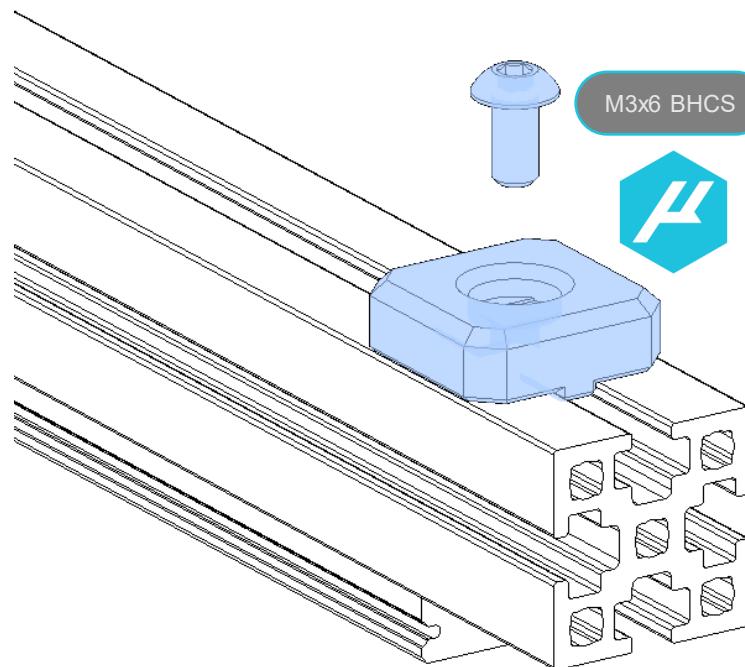
## RIGHT XY JOINT BEARING STACKS

See previous examples for how to assemble these. We use the same bearings and fasteners used in other steps.

## RIGHT XY JOINT CONTINUED

MICRON

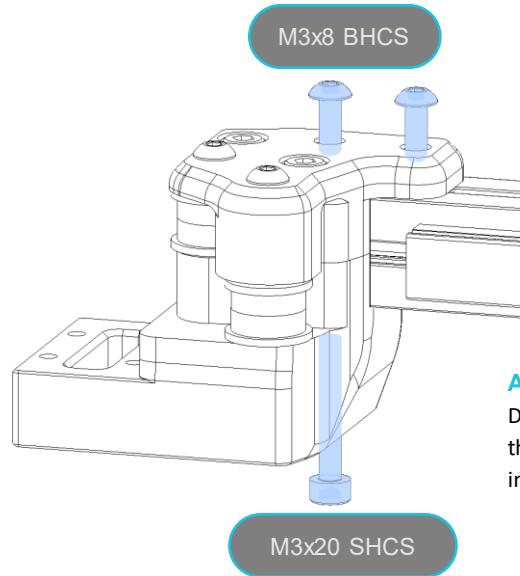




M3x6 BHCS

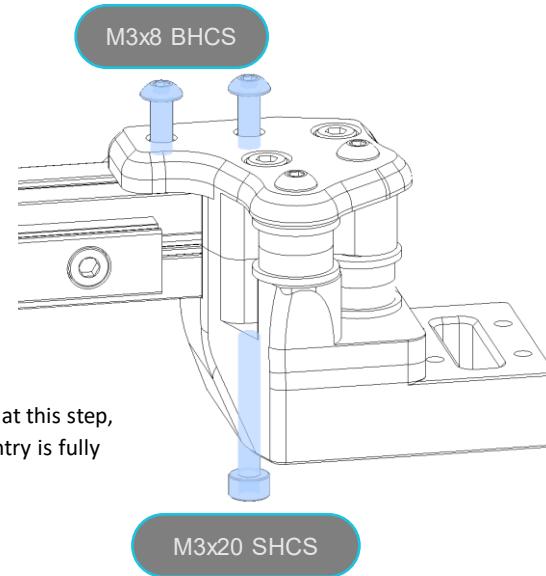
**Y Endstop extender**

The Y endstop needs this little printed part to make sure it gets hit properly. This should be installed 8mm from the end of the extrusion. This gets installed on the opposite side of the MGN9C x rail.

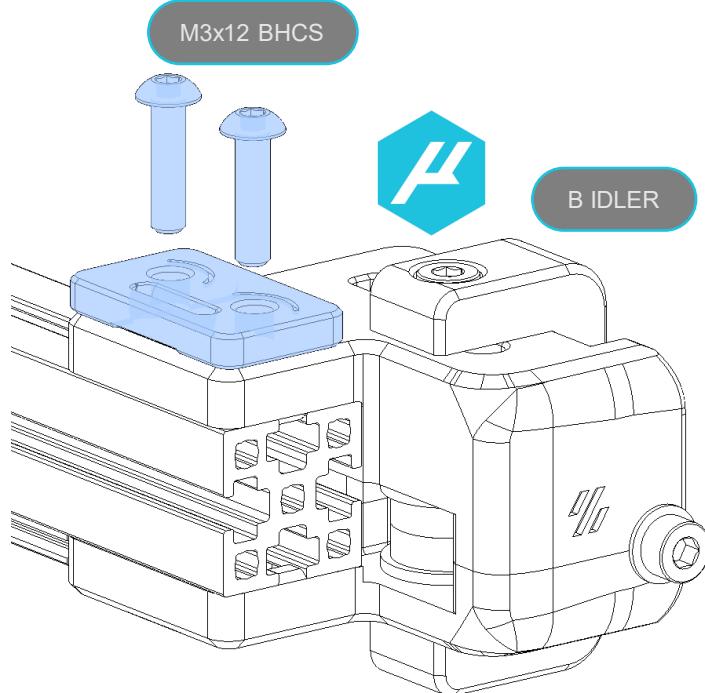


#### Assembling the X axis

Don't tighten the X axis all the way at this step, that will be done later once the gantry is fully installed.



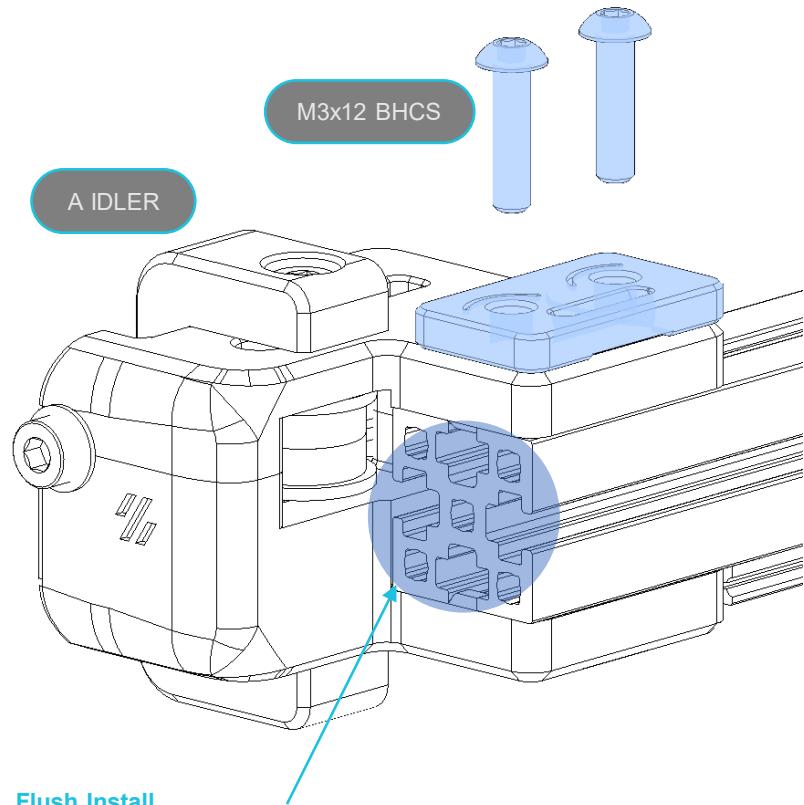
## AB IDLERS



### Belt Clamps

Note only the top belt clamps are installed at this time.

## MICRON

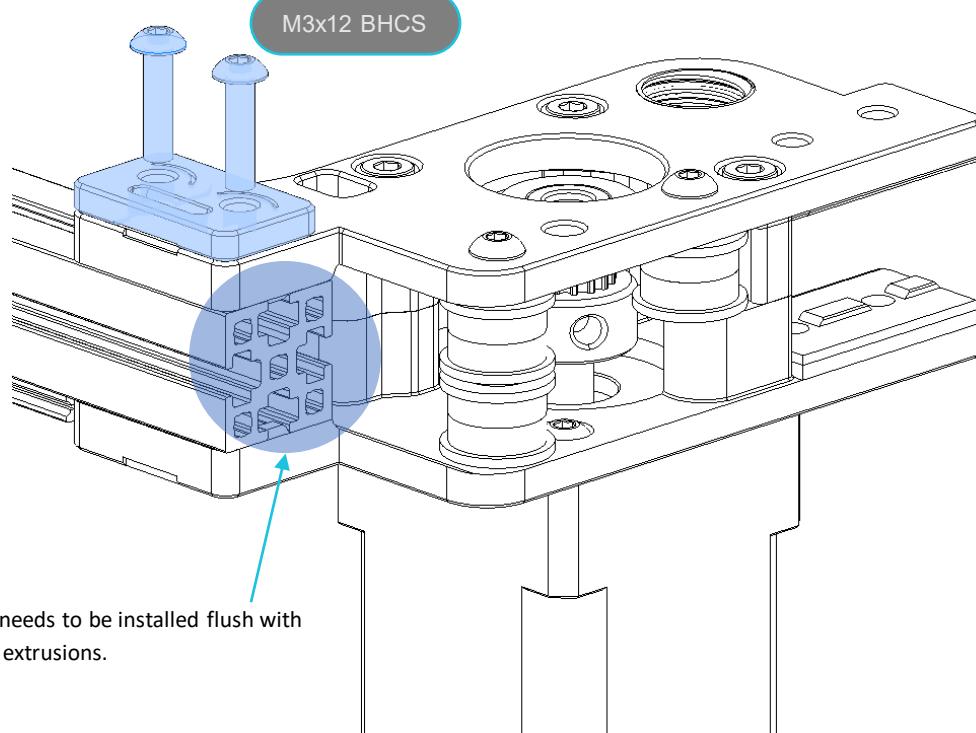


### Flush Install

The front idlers need to be installed flush with the end of the Y gantry extrusions.

**Belt Clamps**

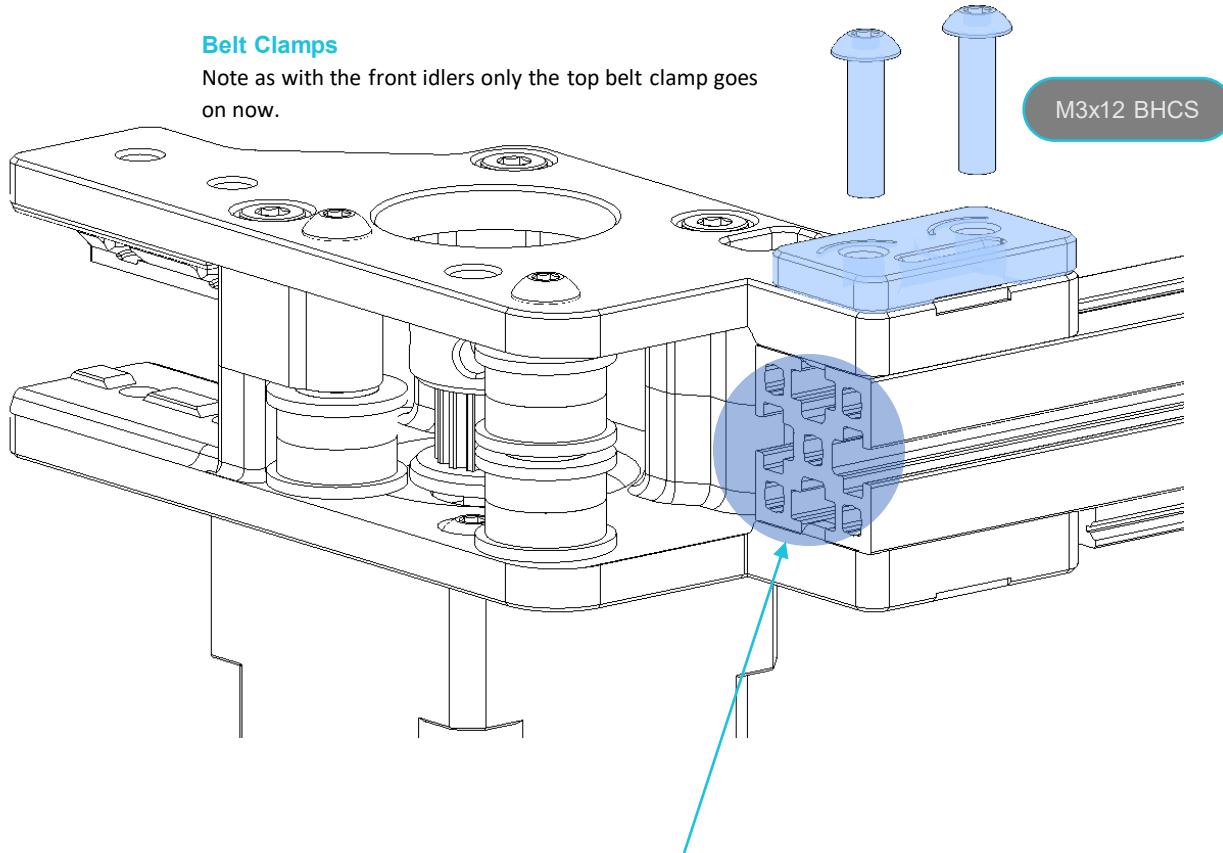
Note as with the front idlers only the top belt clamp goes on now.

**Flush Install**

The rear of the A drive needs to be installed flush with the end of the Y gantry extrusions.

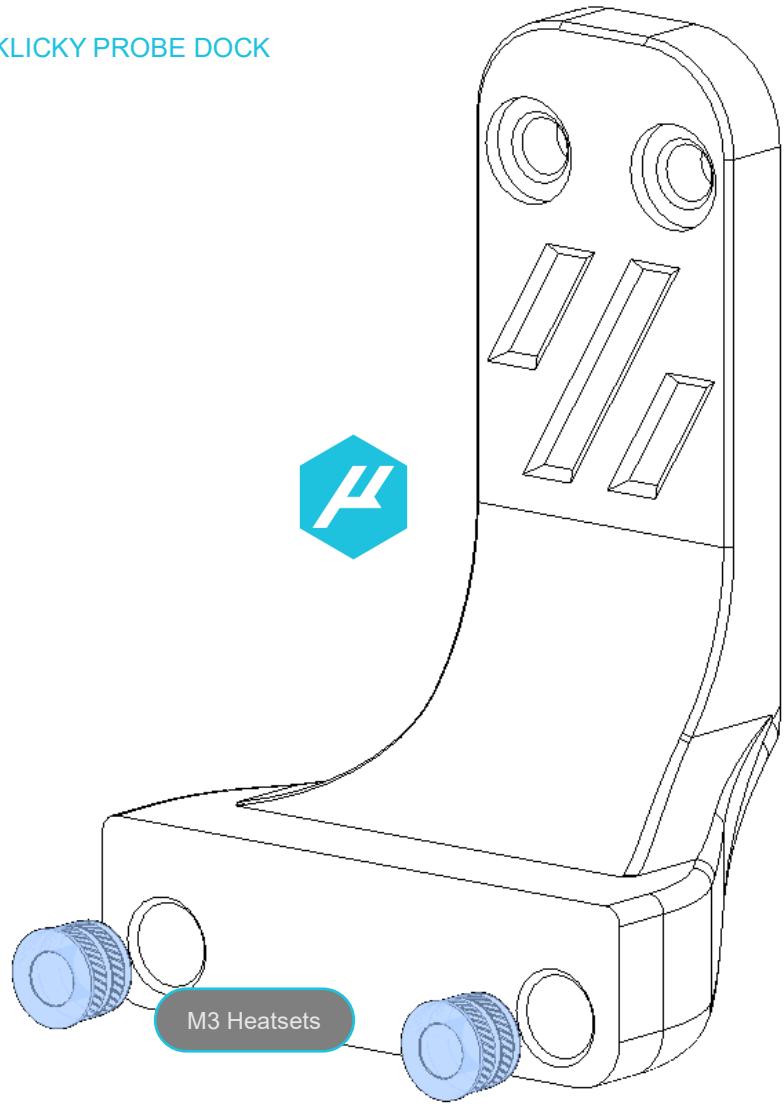
**Belt Clamps**

Note as with the front idlers only the top belt clamp goes on now.

**Flush Install**

The rear of the B drive needs to be installed flush with the end of the Y gantry extrusions.

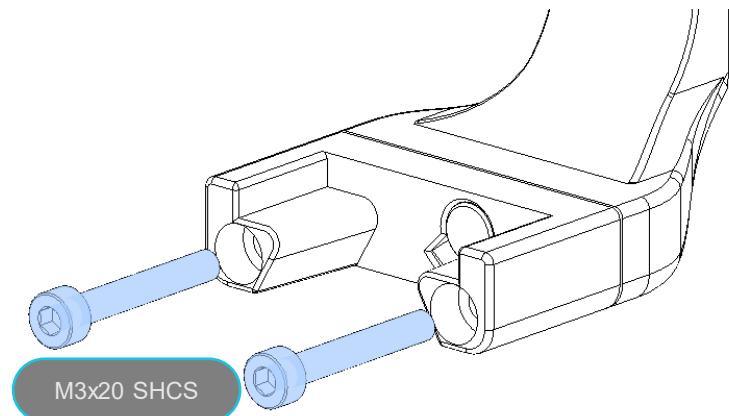
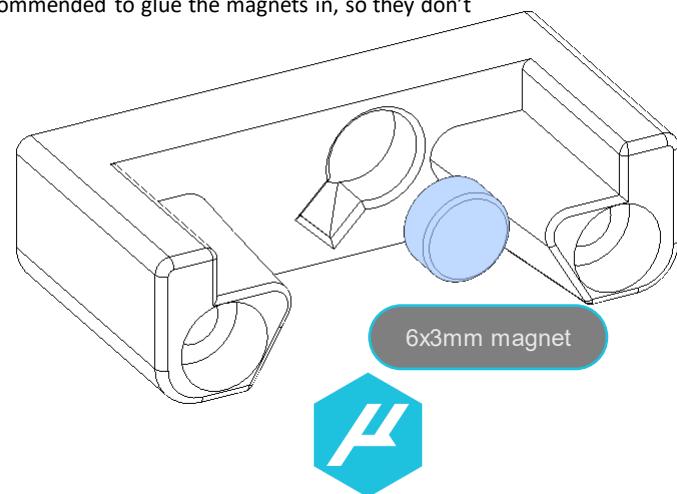
KLICKY PROBE DOCK



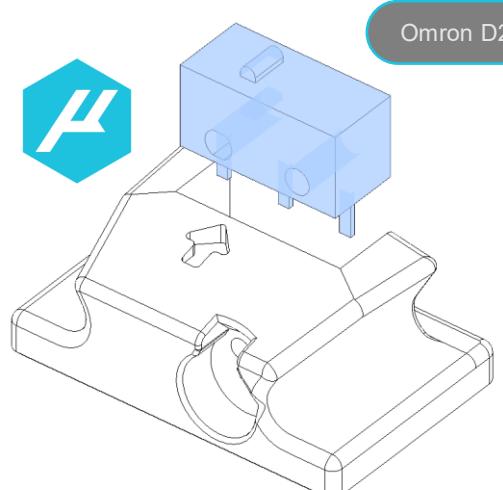
Magnet Install

It is recommended to glue the magnets in, so they don't fall out.

MICRON

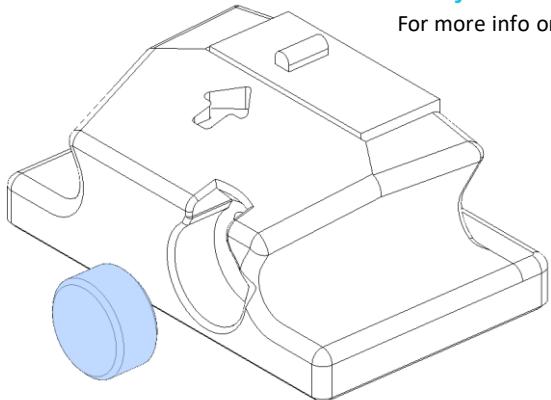


## KLICKY PROBE



### Klicky Probe

For more info on the Klicky probe , click here!



6x3mm magnet

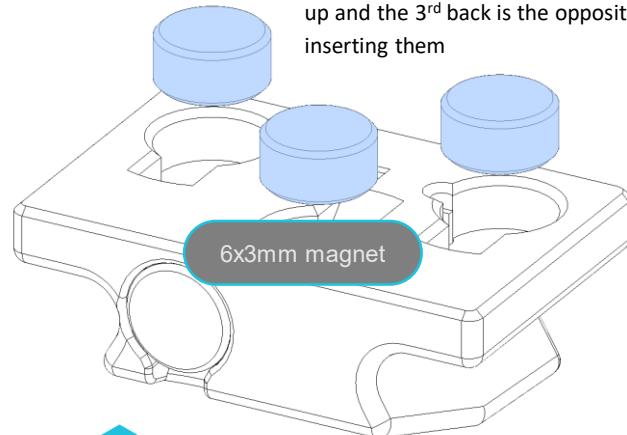
### Don't forget!

Don't forget to glue the magnets in!

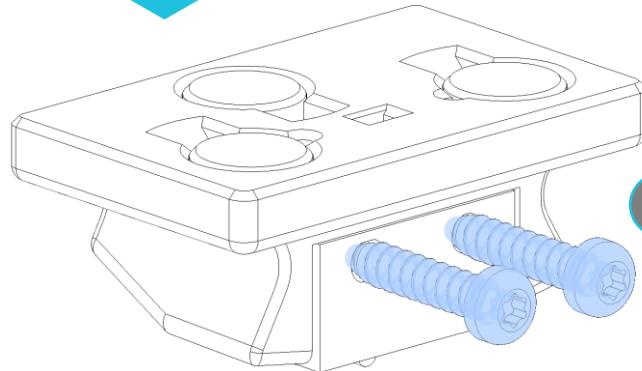
## MICRON

### Magnet Install

Make sure the 2 front magnets are facing the same way up and the 3<sup>rd</sup> back is the opposite and use glue when inserting them



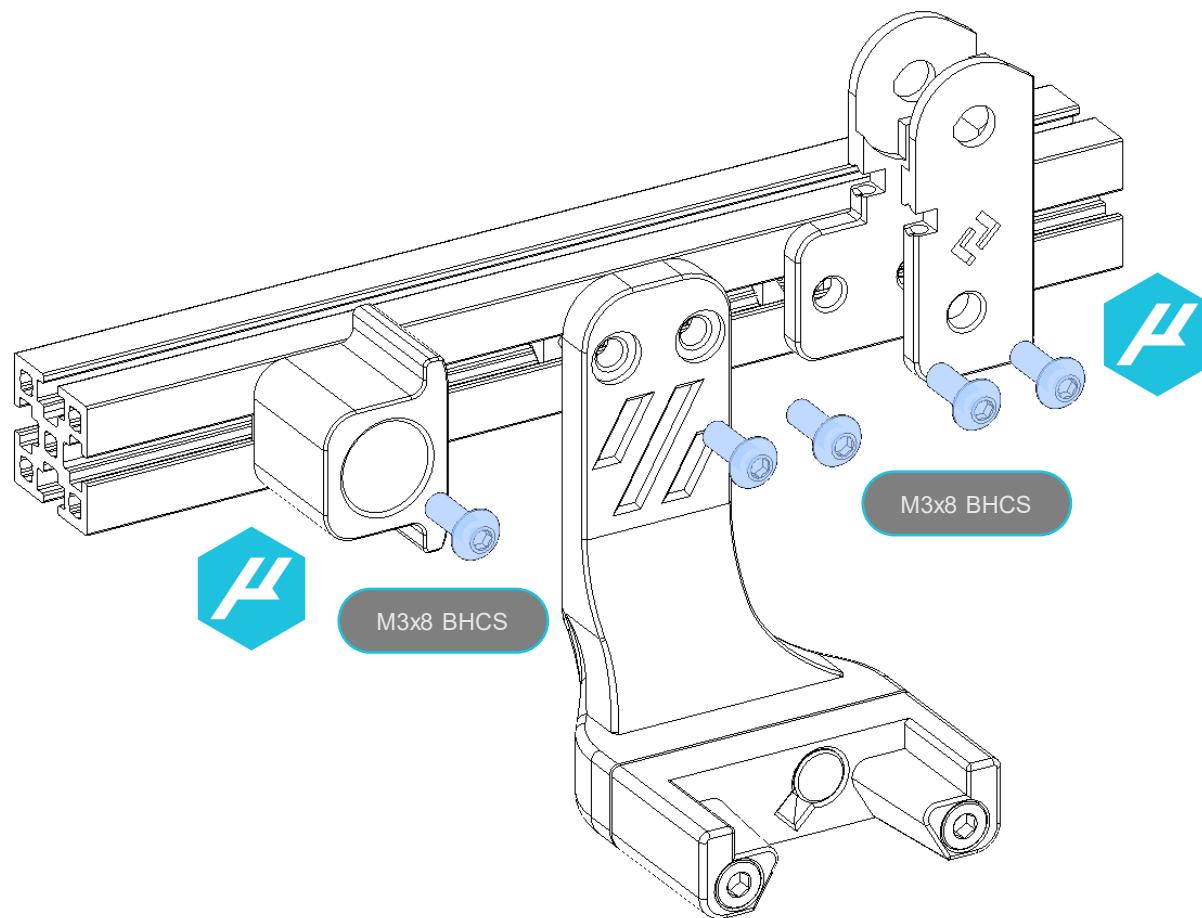
6x3mm magnet

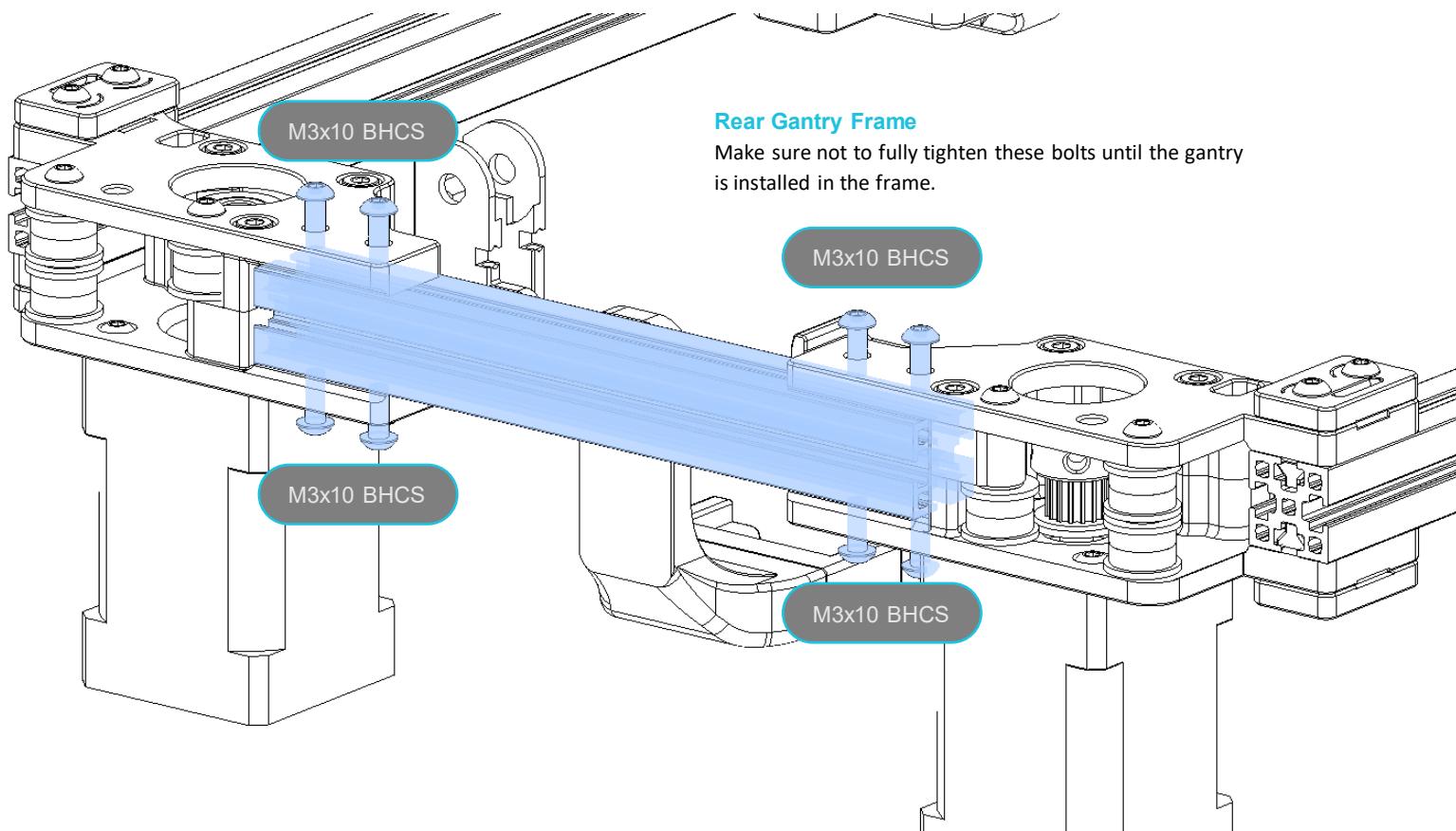


M2x10 Self Tapping

## REAR GANTRY FRAME

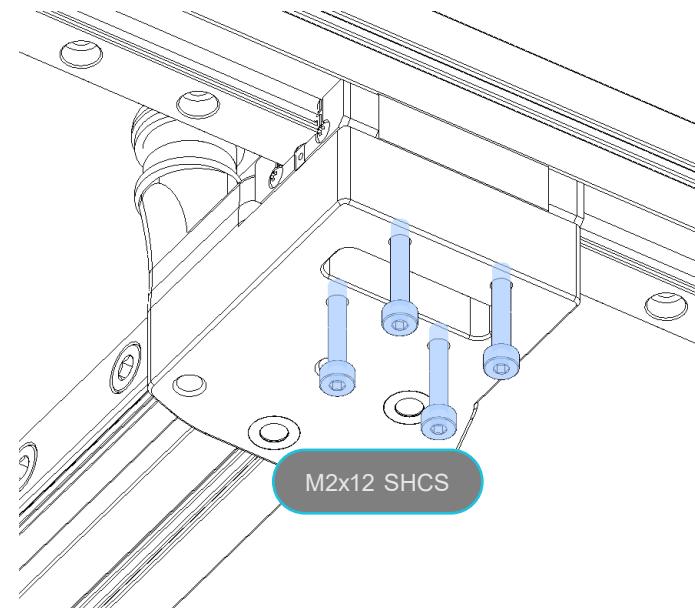
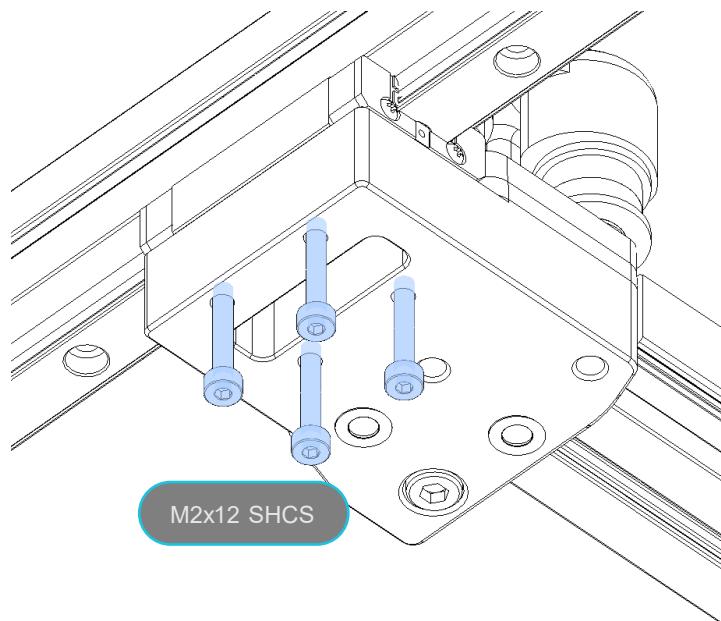
MICRON





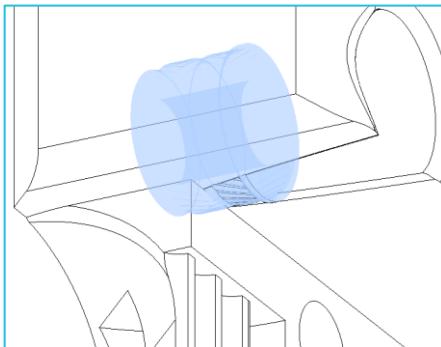
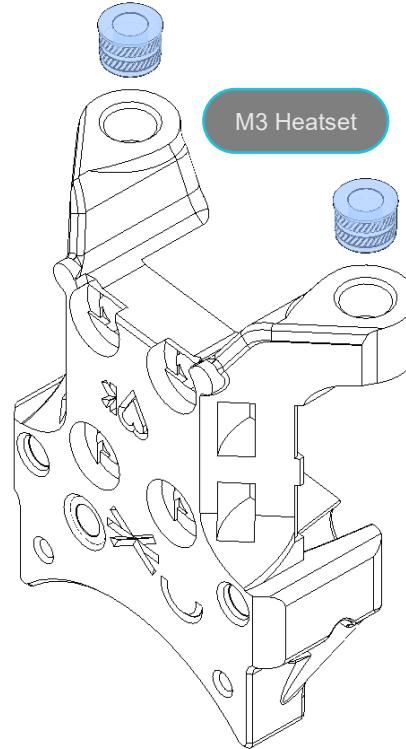
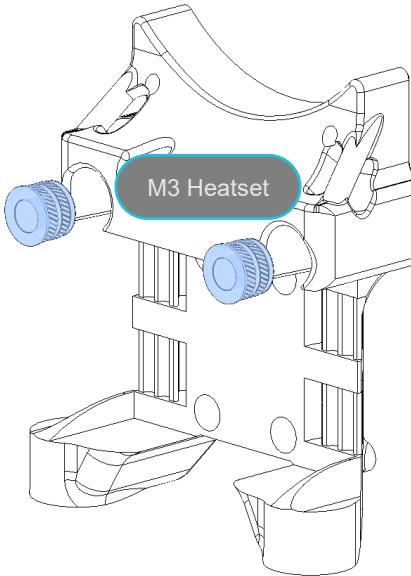
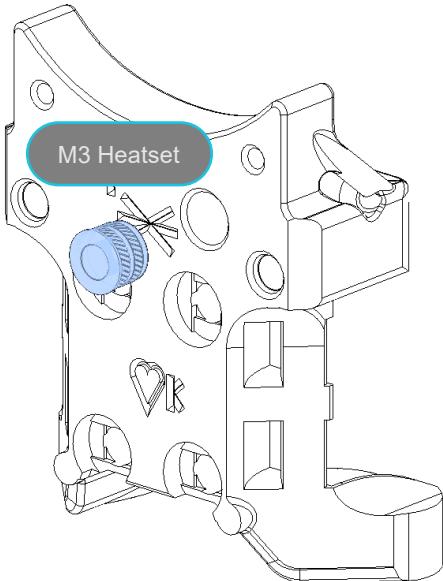
**X Axis installation**

Install the X axis on the Y rails making sure that the mgn9 linear rail is facing forward.



**Prepare the X Carriage**

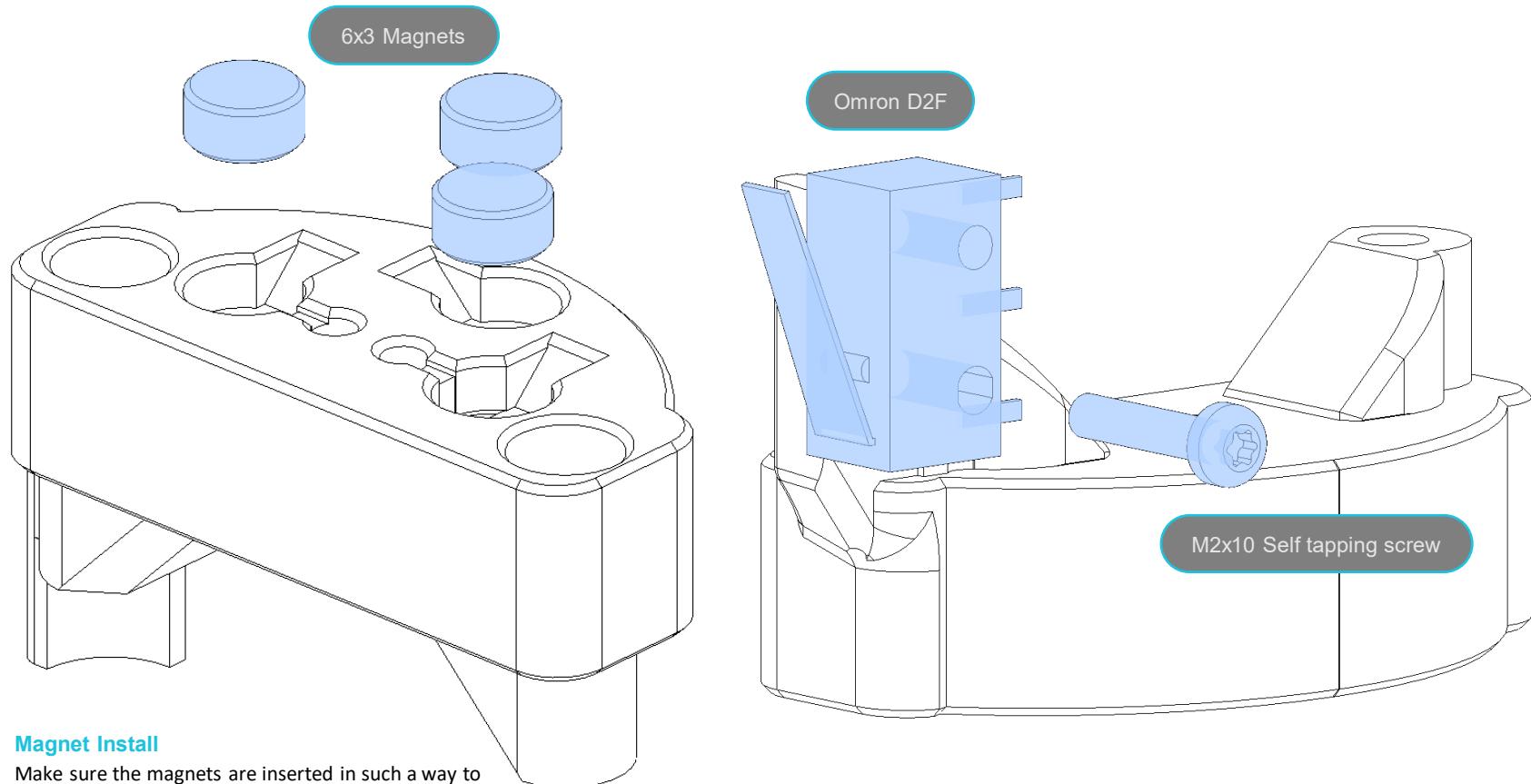
Prepare the x carriage by inserting the 5 M3 heatsets  
inserts that are needed to attached the toolhead/ probe

**Prepare the X Carriage**

The 2 rear heatsets need to be pressed in deeper than  
the surface of the print, you can see here how deep it  
should be sitting

## CARRIAGE PROBE MOUNT

MICRON

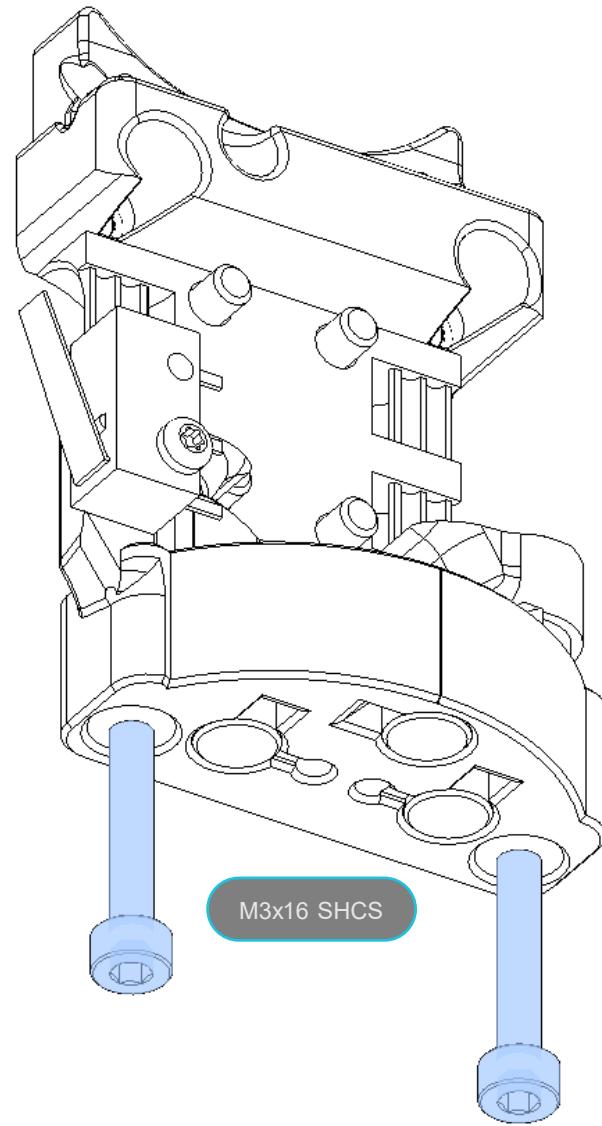


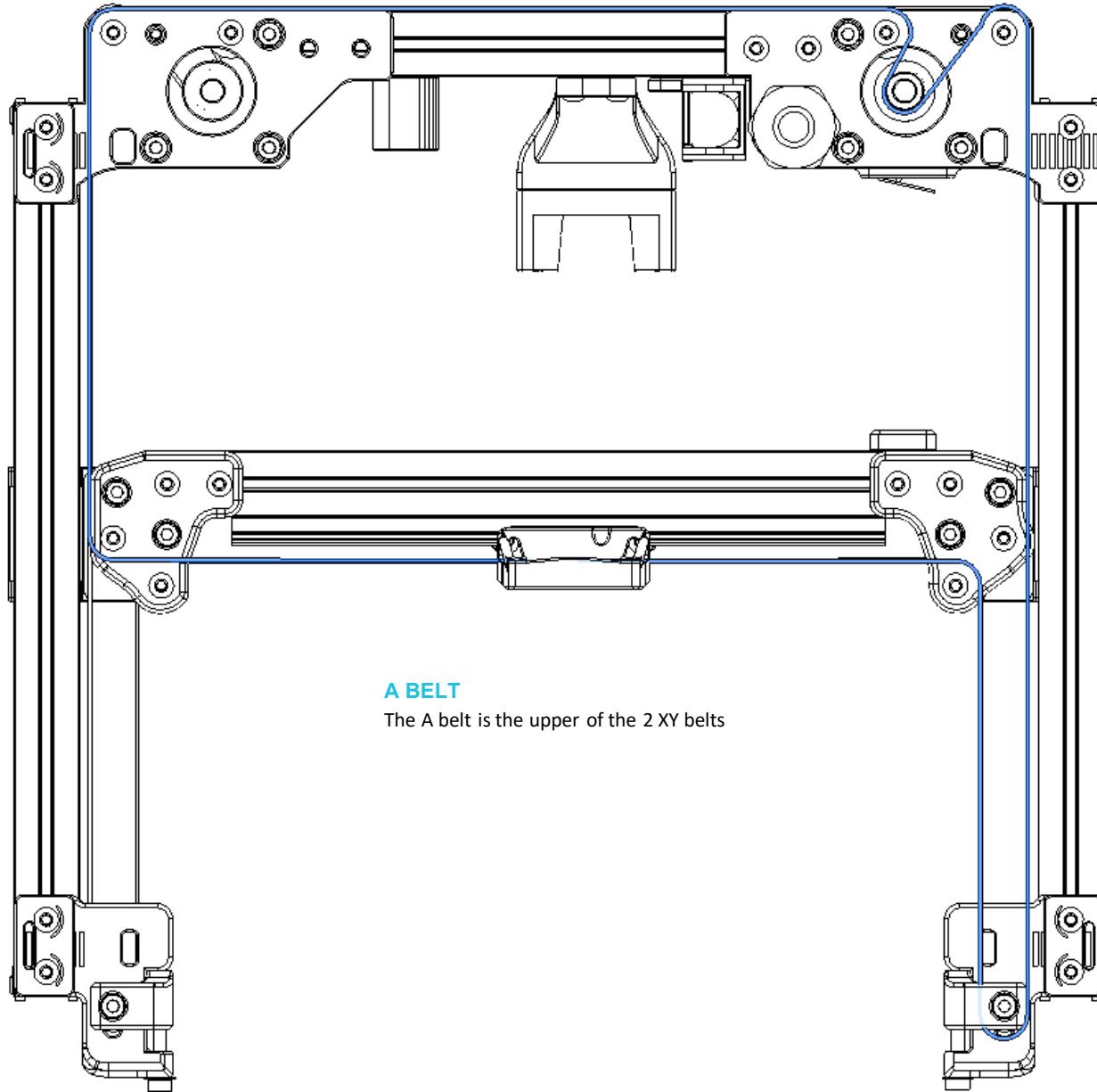
### Magnet Install

Make sure the magnets are inserted in such a way to attract the klicky probe that was assembled on pg 70.  
don't forget the glue!

X CARRAIGE PROBE MOUNT ASSEMBLY

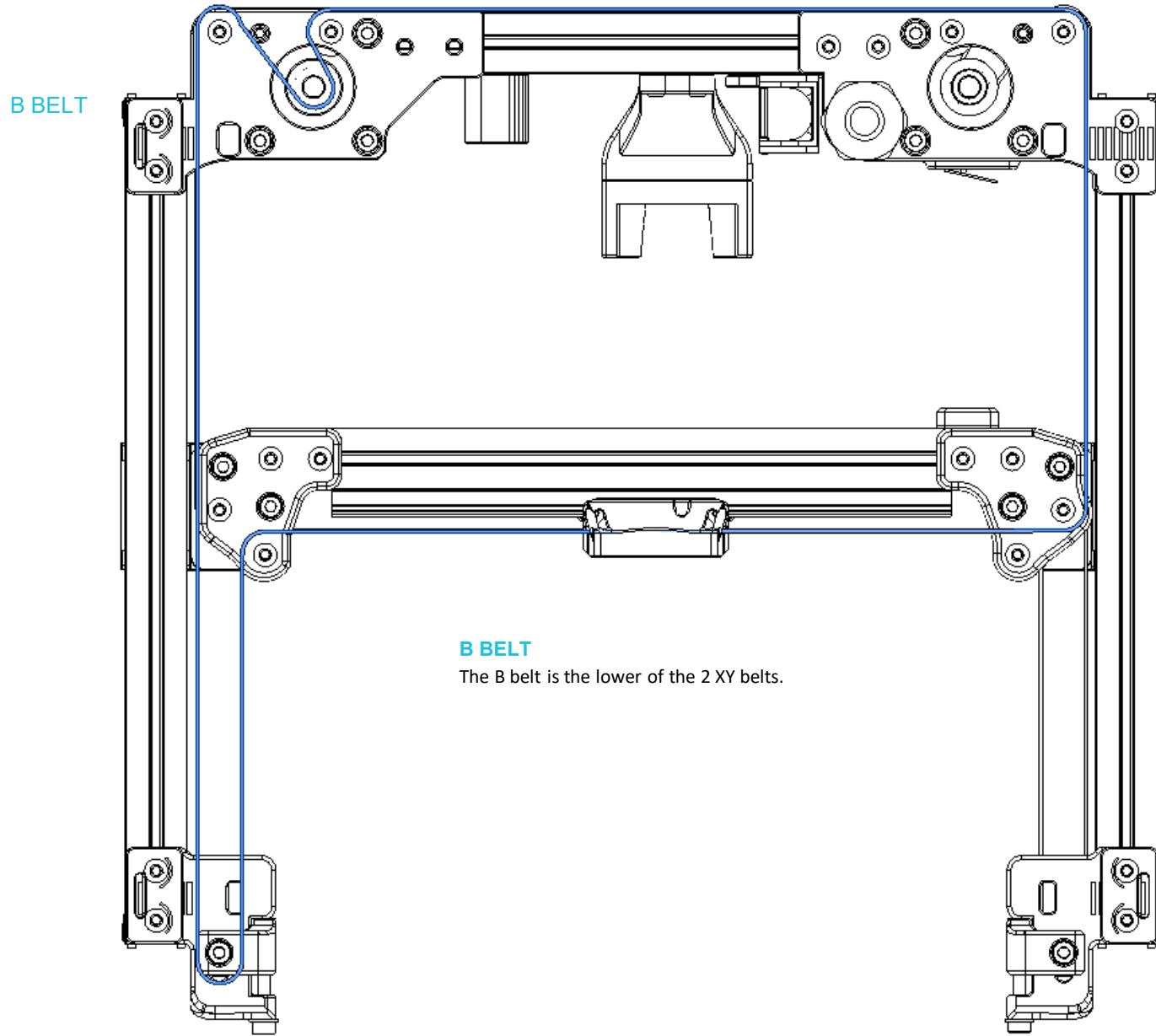
MICRON





**A BELT**

The A belt is the upper of the 2 XY belts



MICRON

**B BELT**

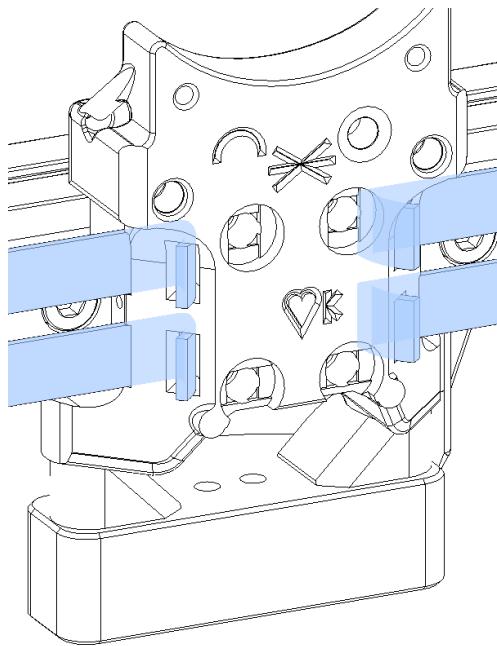
The B belt is the lower of the 2 XY belts.

## CARRAIGE MOUNTING

MICRON

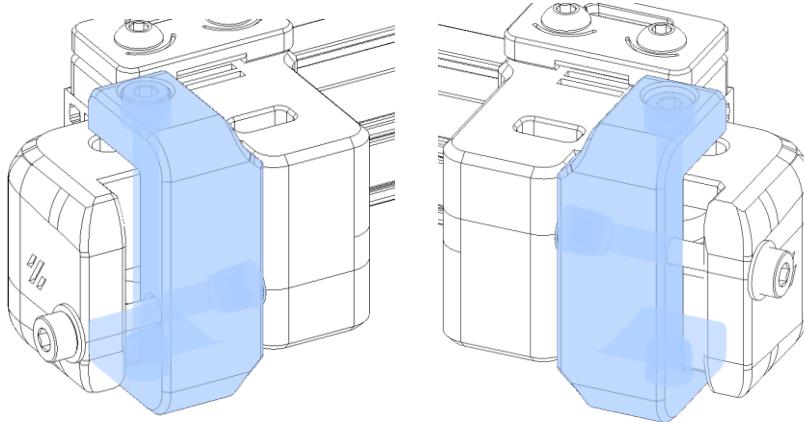
### FRONT IDLERS

Make sure the front idlers are in the loose position before tightening down the carriage, so you have some room to tension the belts

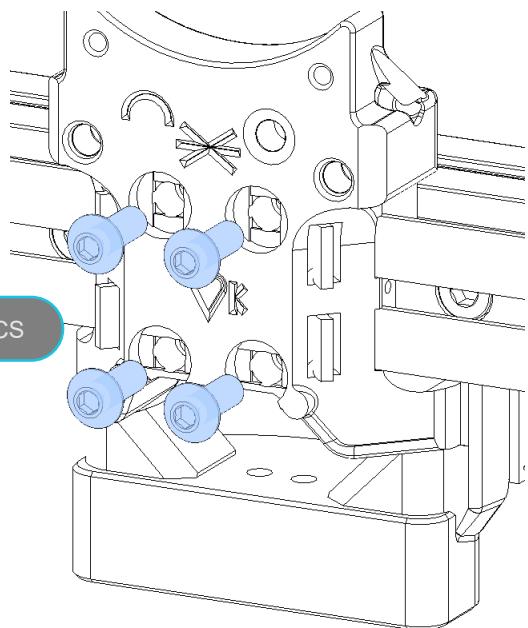


### CARRAIGE MOUNTING

Feed the belts through the carriage and pull them so they are snug, don't need to get them too tight here as the front idlers will be used to tension the belts later. Using 4 M3x8 BHCS secure the carriage to the MGN9C carriage



M3x8 BHCS

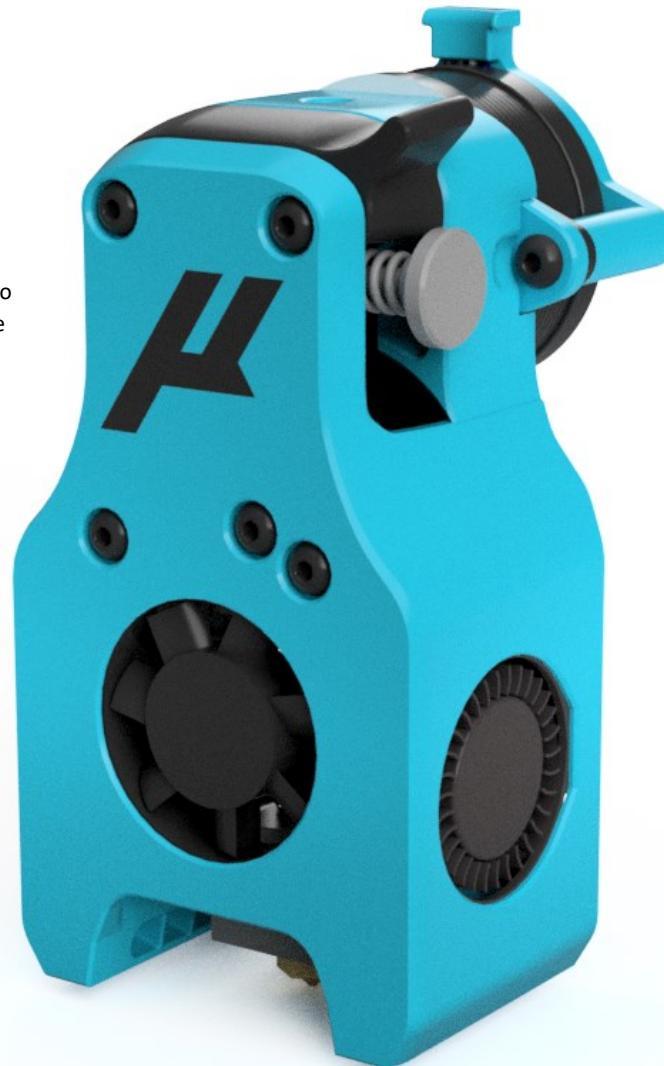


## MINI AFTERBURNER

MICRON

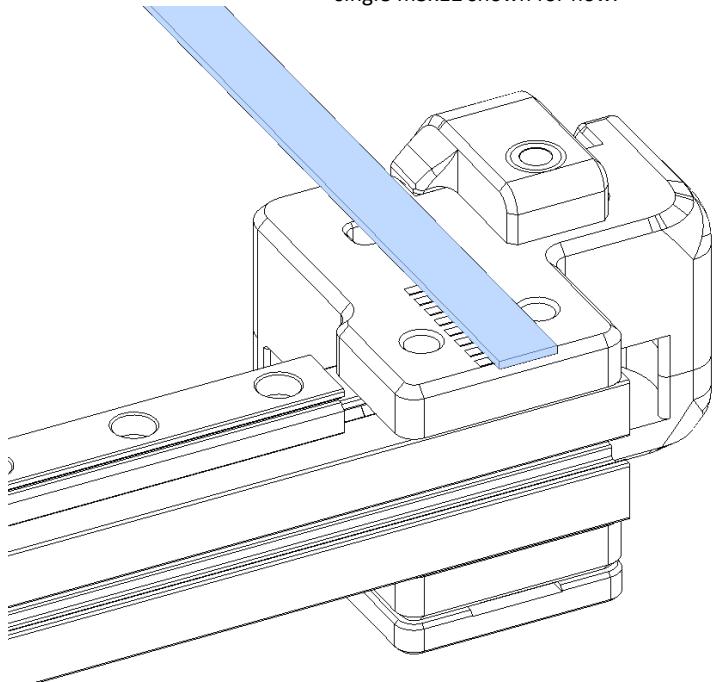
### Mini Afterburner

This manual is not going to go over the assembly of the Mini Afterburner toolhead as that can be found in the Voron V0.1 assembly manual . This won't be attached to the gantry until the gantry is installed in the frame.

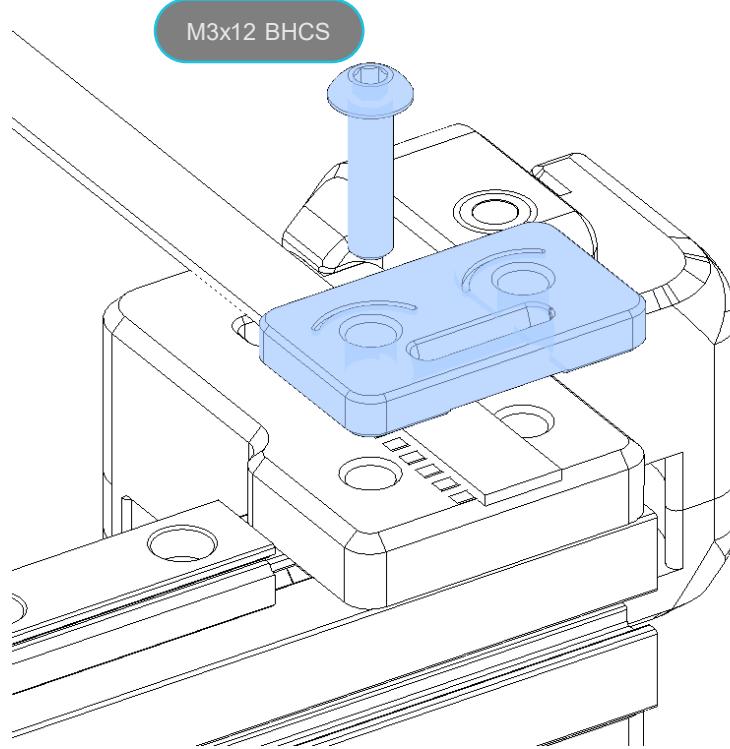


**Z belts**

With the gantry upside down you can now install the lower belt clamps. Using only the single m3x12 shown for now.

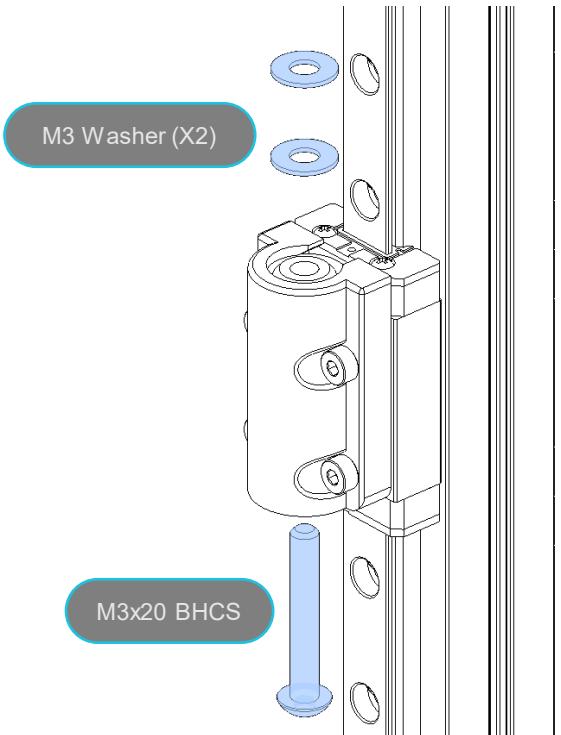
**Teeth down**

The teeth of the belts will be facing down into the grooves on the printed part



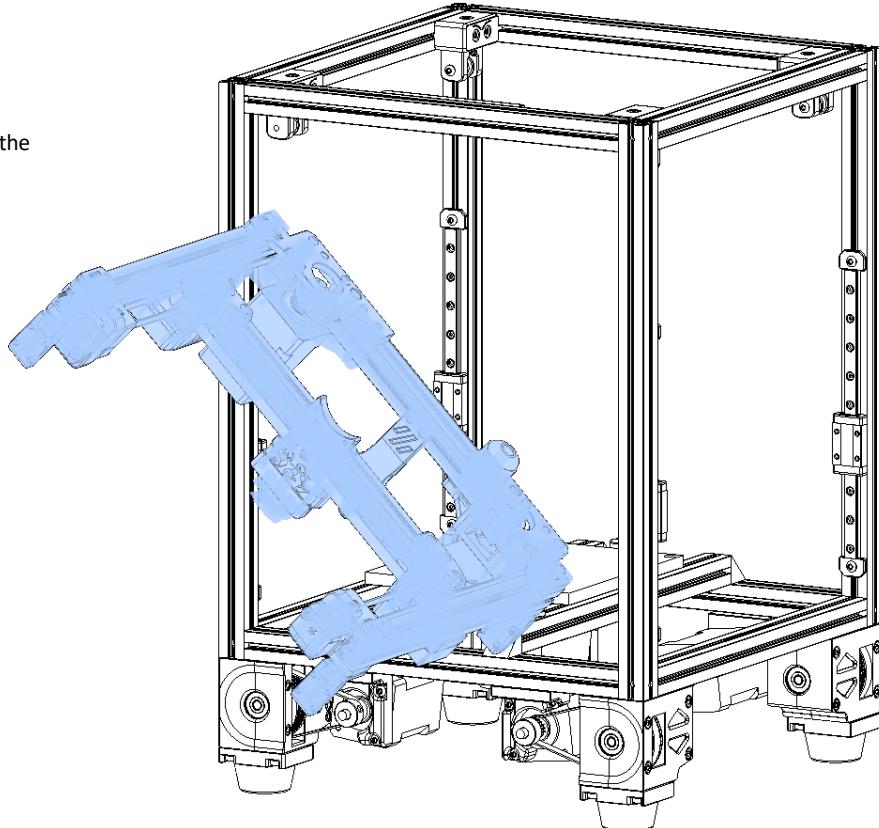
**Z Joints**

Insert an M3x20 and 2 M3 washers on to the Z joint in preparation for the gantry.



M3 Washer (X2)

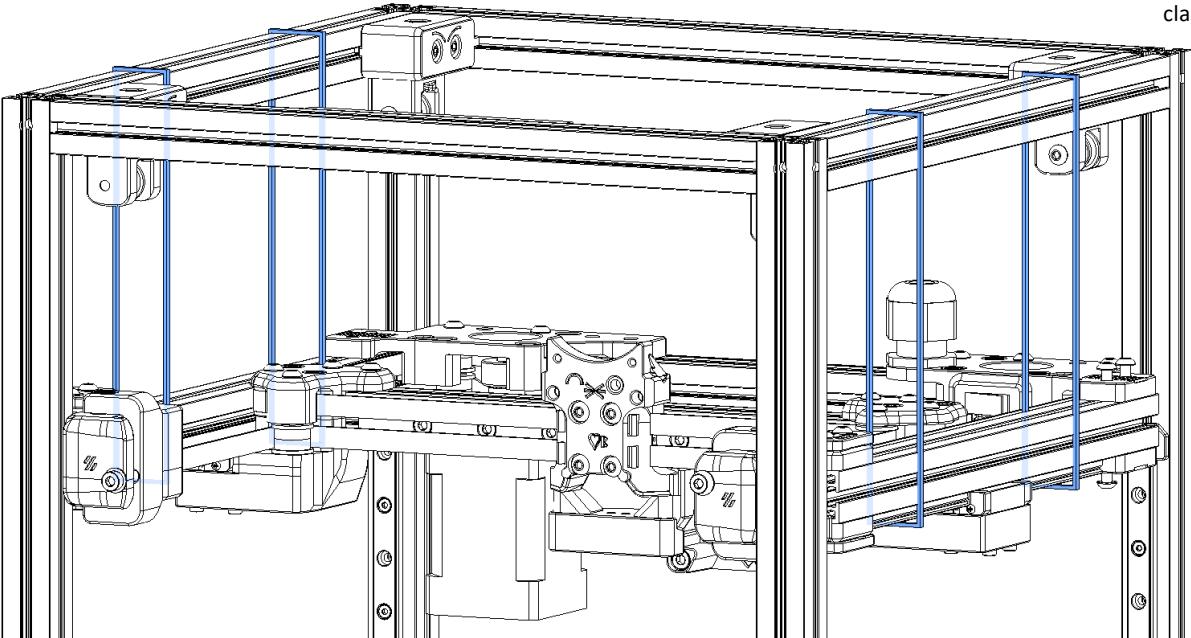
M3x20 BHCS

**Gantry**

Now that the gantry is fully assembled you can now install it in the printer , its easiest if you tilt the gantry to slide it in. This will just get set on the Z joints from previous step.

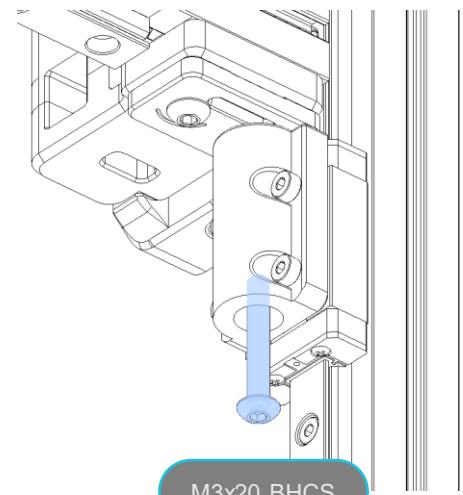
## Z BELTS

MICRON



## INSTALLING GANTRY

Using the M3x20 and attach the gantry to the last remaining hole on the lower belt clamp



## ZIPTIES

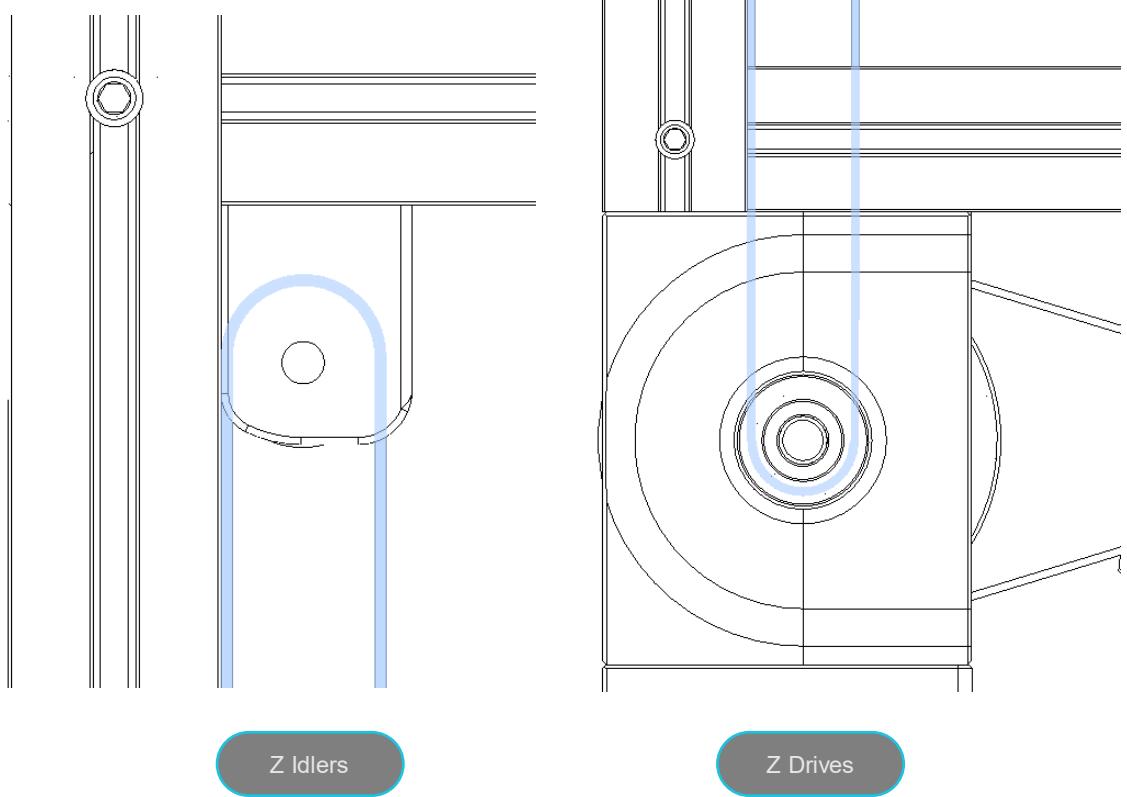
You can use 4 zip ties to help hold up the gantry while you secure the Z joints as well as route the Z belts in the next step. Once the gantry is held up with the belts the zip ties can be removed.

## Z BELTS

MICRON

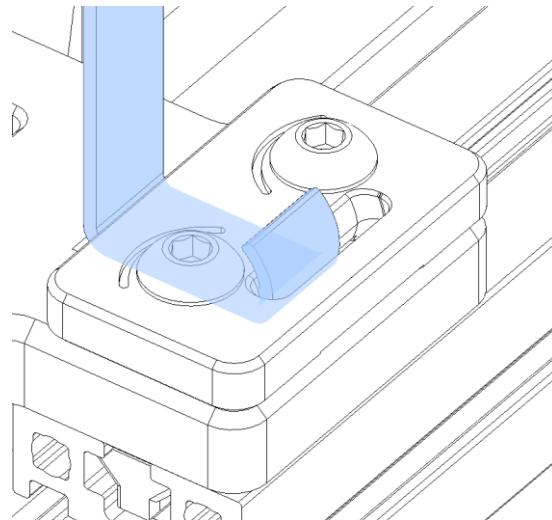
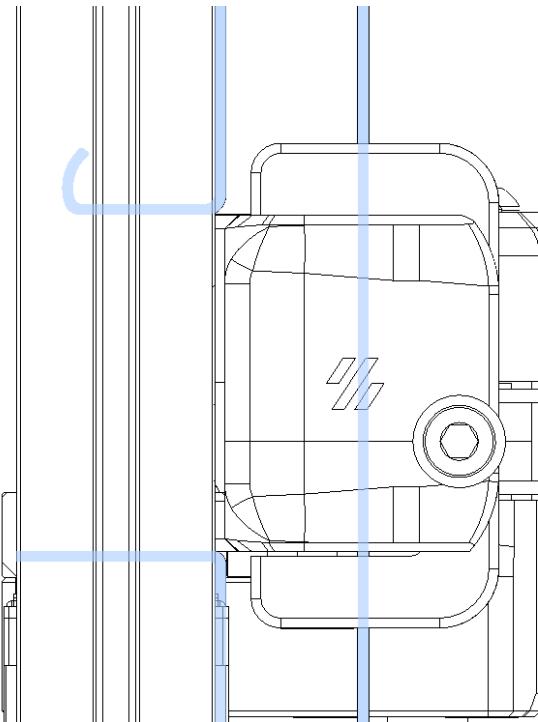
### ROUTING Z BELTS

Since the belt is already attached to the bottom of the idler thread the belt down through the z drive , up through the holes in the gantry and then around the Z idlers and back down to the gantry.



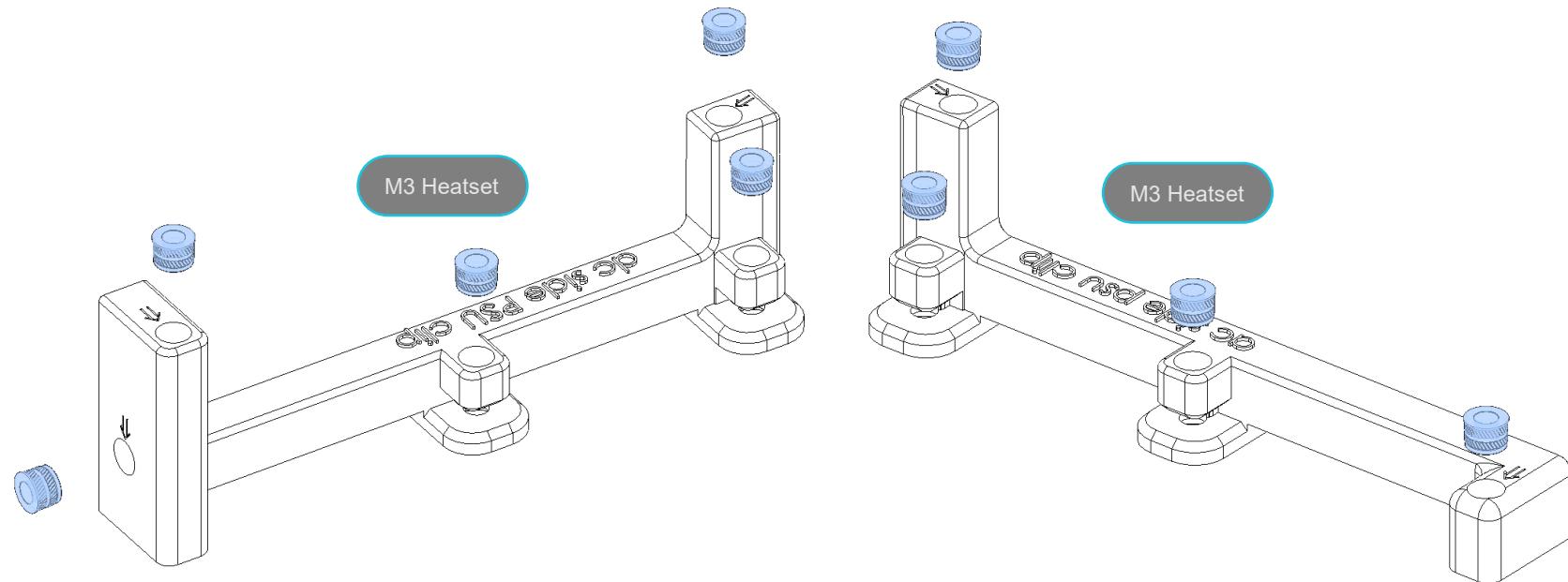
**SECURING THE Z BELTS**

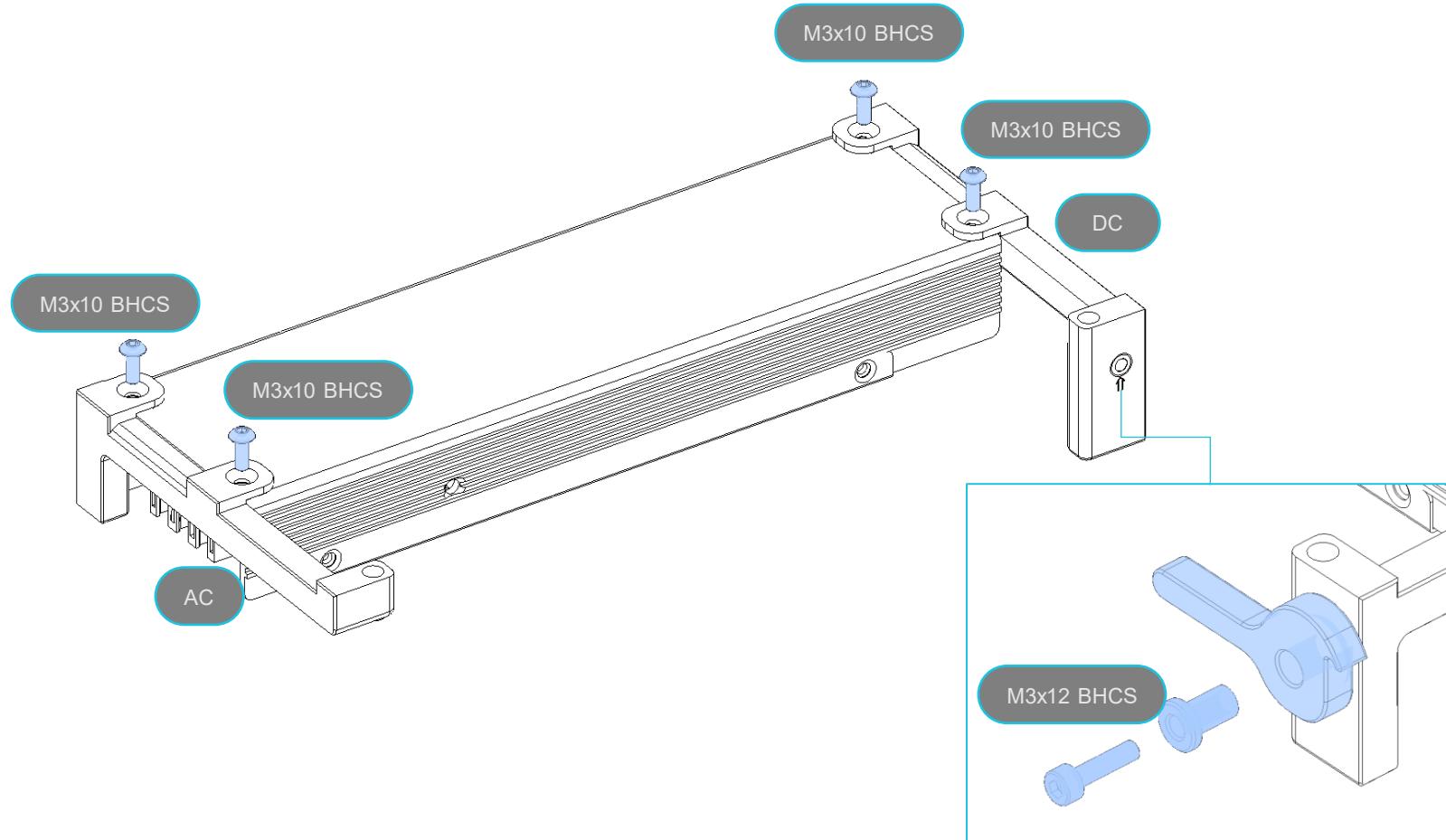
Loosen the screws that were used to secure the front Idlers and slip the belt under it, make sure to route the belt through the "mouth" of the belt clamp. Then tighten the idler back down.

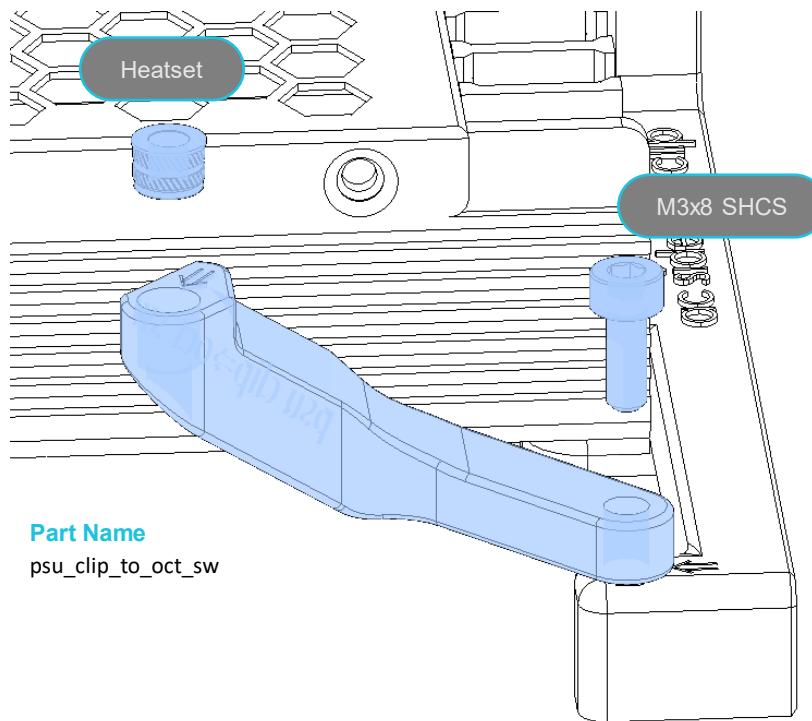


ELECTRONICS

MICRON

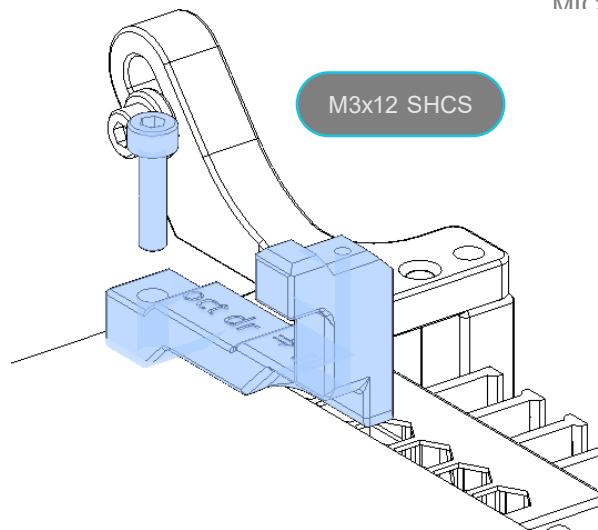




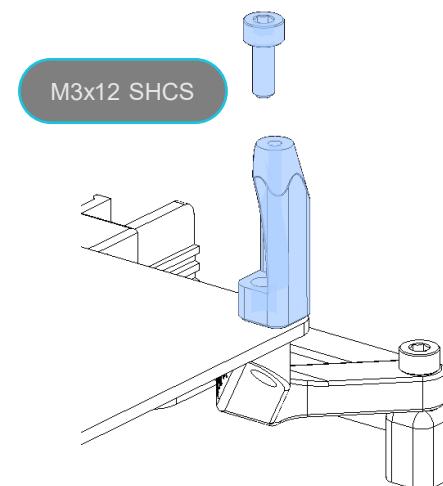
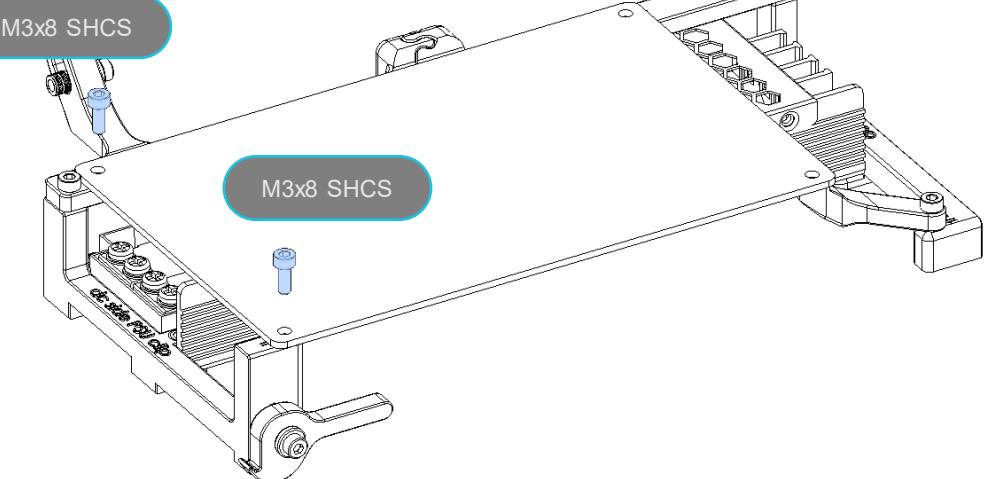


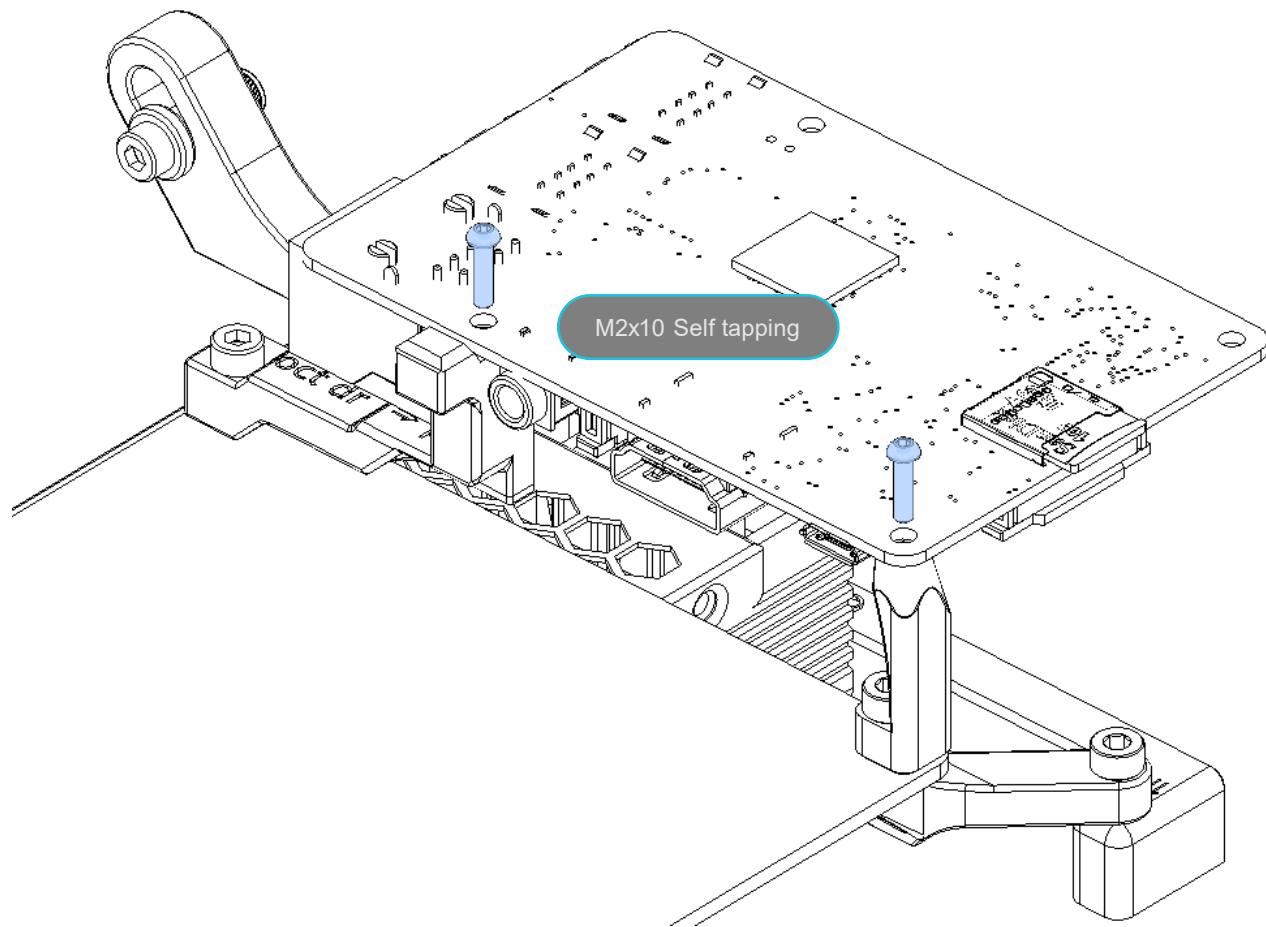
**Part Name**

psu\_clip\_to\_oct\_sw

**MCU Orientation**

This is a blank placeholder for an Octopus. The stepper drivers are in the rear of the printer

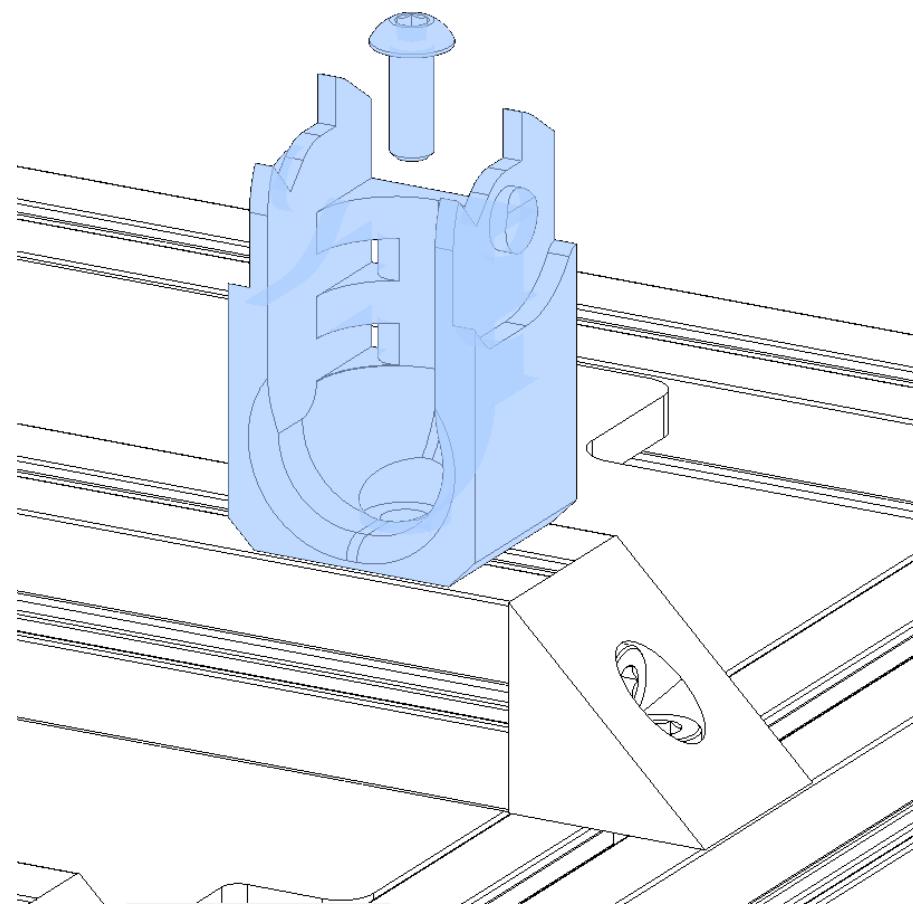




Z CHAIN

MICRON

M3x8 BHCS

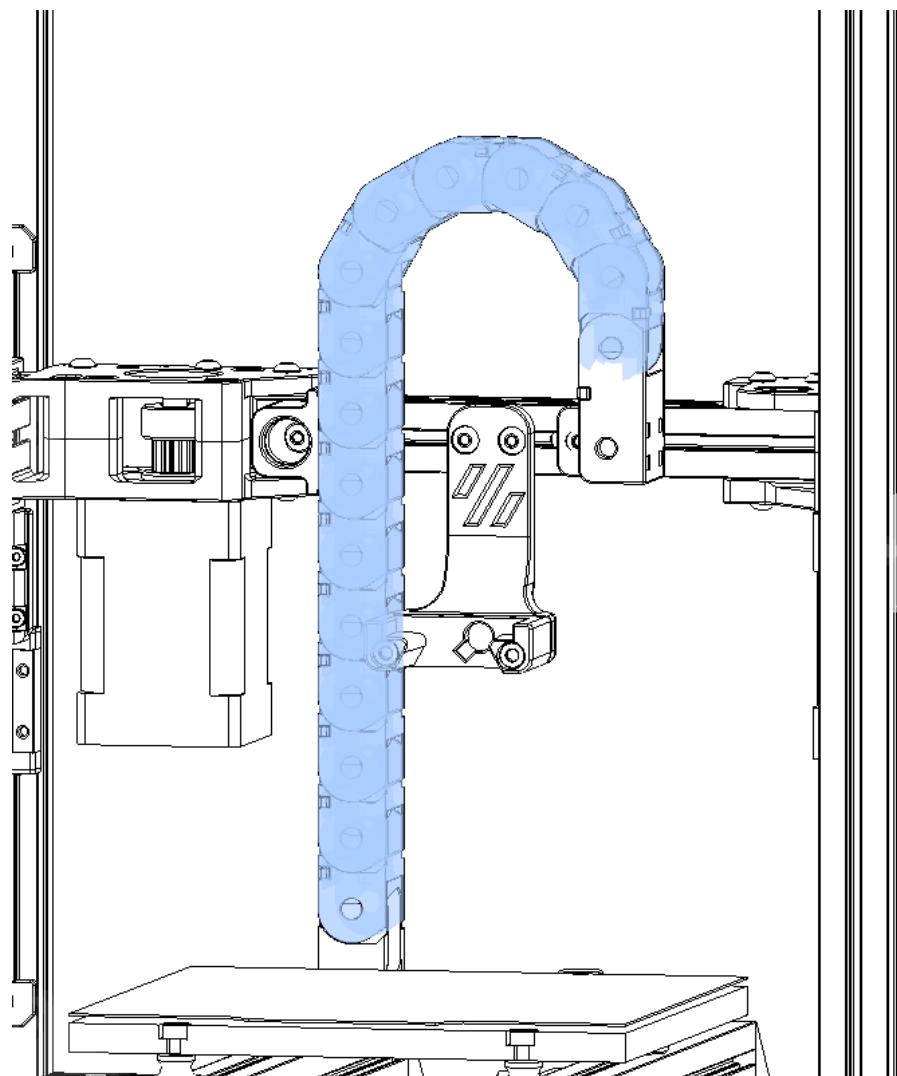


## Z CHAIN

MICRON

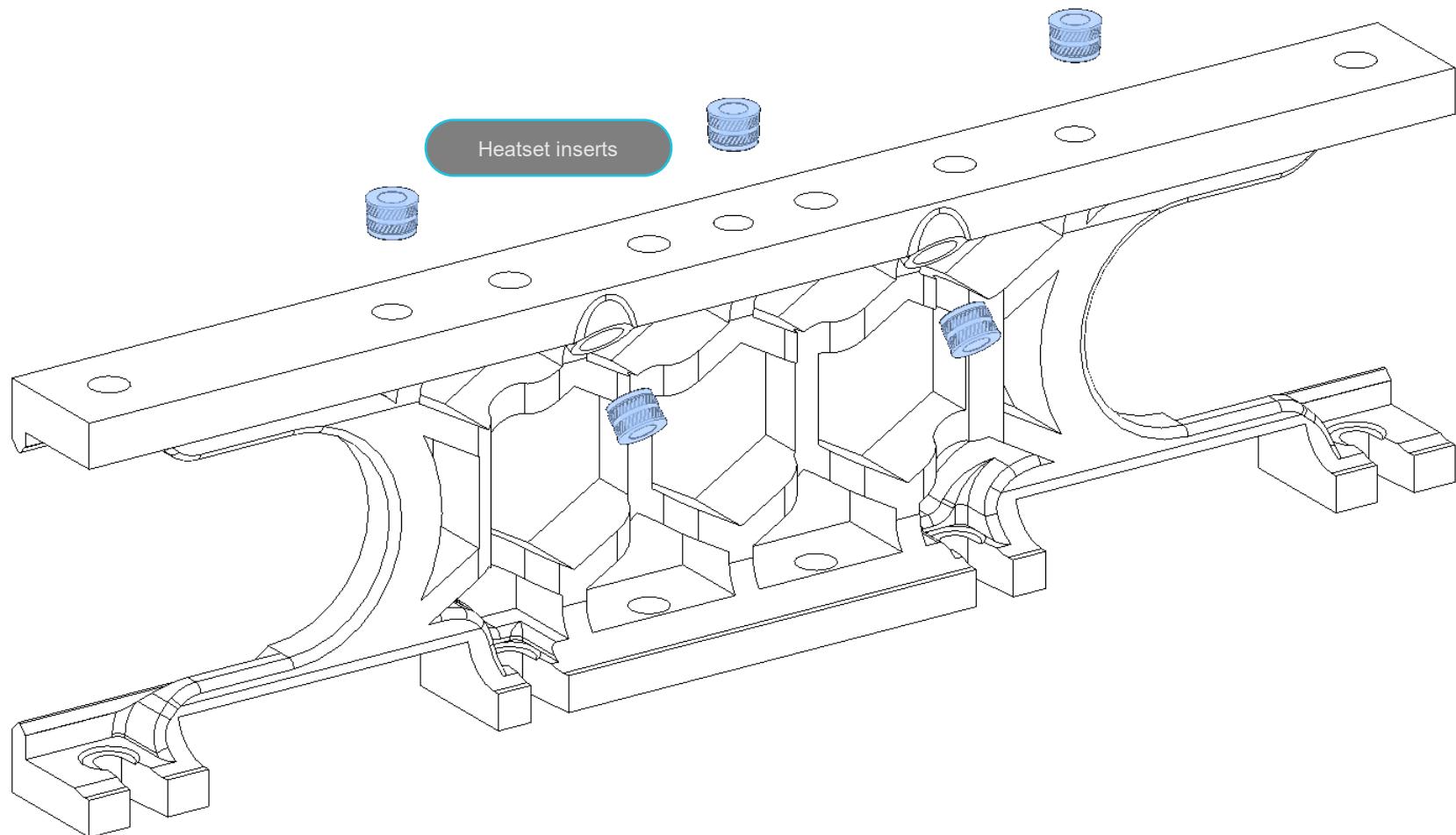
### Z Chain

There are 15 links in the Z chain.



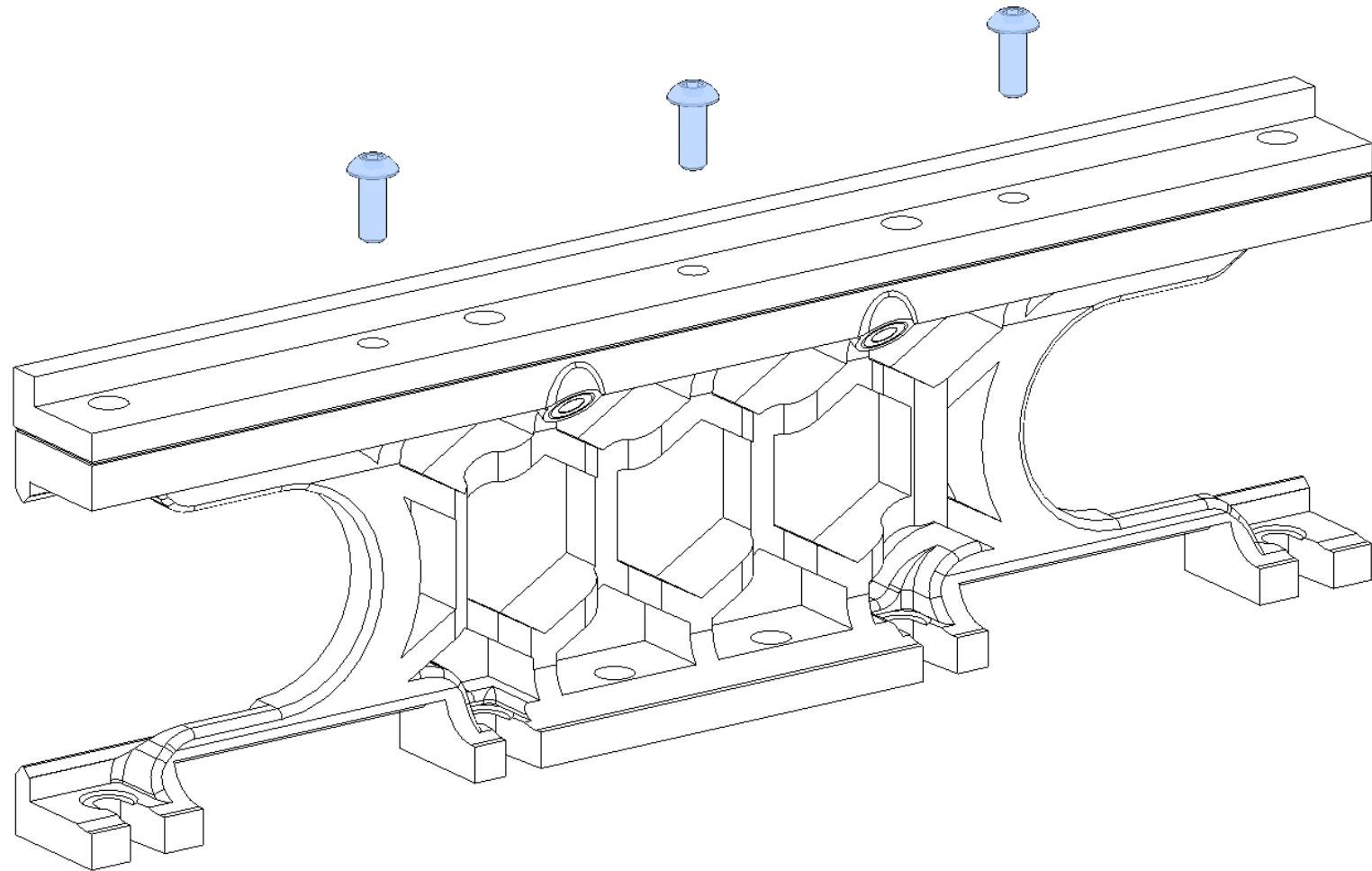
FRONT SKIRT

MICRON



FRONT SKIRT

MICRON



TEMPLATE

MICRON

TEMPLATE

MICRON