



SIBOOR Trident [JUNE] ASSEMBLY

VERSION 2024/7/11

Important Note:

This assembly manual is exclusively designed for the SIBOOR Trident JUNE kit. For the official VORON Trident assembly manual, please refer to the following link:

<https://github.com/VoronDesign/Voron-Trident/tree/main/Manual>

Why the Change?

The SIBOOR Trident JUNE kit includes numerous modifications and significant electrical adjustments. Simply adding supplementary pages to the existing manual is no longer sufficient. You would have to navigate through many pages repeatedly.

To enhance user experience, SIBOOR has opted to create a new assembly guide from scratch, ensuring it closely matches the Trident JUNE kit. The assembly logic and the presentation of most steps in this manual are inspired by the original VORON manual.

Should you find an issue in the documentation or have a suggestion for an improvement please

consider opening an issue on GitHub

(<https://github.com/Lzhikai/SIBOOR-Voron-Trident-June/issues>).

When raising an issue please include the relevant page numbers and a short description; annotated

screenshots are also very welcome. We periodically update the manual based on the feed-

| | | | |
|----------------------|-----|-------------------|-----|
| Introduction | 04 | Stealthburner | 123 |
| Hardware | 07 | 12032 _Part_Fans | ? ? |
| Frame | 12 | Wiring Prep | ? ? |
| CNC AWD Drive-Y Axis | 23 | Electronics | ? ? |
| CNC AWD Drive-X Axis | 43 | Wiring | ? ? |
| Belts | 52 | fume_pack | ? ? |
| Z Axis | 63 | clickyclacky_door | ? ? |
| Skirts | 92 | Panels | ? ? |
| Printer Bed | 109 | | |

HOW TO GET HELP

If you need assistance with your build, we're here to help. Head on over to our Discord group and post your questions. This is our primary medium to help VORON Users and we have a great community that can help you out if you get stuck.



DISCORD

Voron Discord: <https://discord.gg/voron>

Siboor Discord: <https://discord.gg/BMJD4puJf6>

Here are some portals for your convenience:

- VORON Design: www.vorondesign.com
- SIBOOR DOCS: <https://docs.siboor.com>
- SIBOOR Trident [JUNE] Github: <https://github.com/Lzhikai/SIBOOR-Voron-Trident-June>

If you want to learn more about the mods included in this kit:

- CNC AWD Drive: <https://github.com/GKD-Team/Voron-Trident-CNC-Gantry>
- Cartographer Probe: <https://docs.cartographer3d.com>
- Fume pack V2: https://github.com/Exerqtor/Voron/tree/main/Mods/fume_pack
- Clickyclacky door: https://github.com/tanaes/whopping_Voron_mods/tree/main/-clickyclacky_door

Mods already included in the SIBOOR Trident [JUNE] GitHub are not listed separately.

PART PRINTING GUIDELINES

The Voron Team has provided the following print guidelines for you to follow in order to have the best chance at success with your parts. There are often questions about substituting materials or changing printing standards, but we recommend you follow these:

3D PRINTING PROCESS

Fused Deposition Modeling (FDM)

INFILL TYPE

Grid, Gyroid, Honeycomb, Triangle or Cubic

MATERIAL

ABS

INFILL PERCENTAGE

Recommended: 40%

LAYER HEIGHT

Recommended: 0.2mm

WALL COUNT

Recommended: 4

EXTRUSION WIDTH

Recommended: Forced 0.4mm

SOLID TOP/BOTTOM LAYERS

Recommended: 5

FILE NAMING

By this time you should have already downloaded our STL files from the Voron GitHub. You might have noticed that we have used a unique naming convention for the files. This is how to use them.

PRIMARY COLOR

Example z_joint_lower_x4.stl

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

ACCENT COLOR

Example [a]_tensioner_left.stl

We have added “[a]” to the front of any STL file that is intended to be printed with accent color.

QUANTITY REQUIRED

Example [a]_z_belt_clip_lower_x4.stl

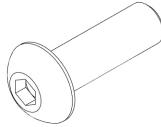
If any file ends with “_x#”, that is telling you the quantity of that part required to build the machine.

*The suffix "by_SIBOOR" on some STL files indicates that these files differ from the original VORON design or the original MOD design and are specifically tailored for the SIBOOR Trident JUNE KIT.

*The prefix "[Two-color]" indicates that the STL file requires printing with two different colors of ABS filament.



In this manual, parts marked with a red star indicate they are ACCENT COLOR.



BUTTON HEAD CAP BOLT (BHCS)

Metric fastener with a domed shape head and hex drive. Most commonly found in locations where M5 fasteners are used.



FLAT HEAD COUNTERSUNK BOLT (FHCS)

Metric fastener with a cone shaped head and a flat top.



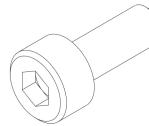
HEX NUT

Hex nuts couple with bolts to create a tight, secure joint. You'll see these used in both M3 and M5 variants throughout this guide.



POST INSTALL T-SLOT NUT (T-NUT)

Nut that can be inserted into the slot of an aluminium profile. Used in both M3 and M5 variants throughout this guide. Often also called "roll-in t-nut".



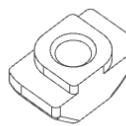
SOCKET HEAD CAP BOLT (SHCS)

Metric fastener with a cylindrical head and hex drive. The most common fastener used on the Voron.



HEAT SET INSERT

Heat inserts with a soldering tip so that they melt the plastic when installed. As the plastic cools, it solidifies around the knurls and ridges on the insert for excellent resistance to both torque and pull-out.



HAMMERHEAD NUT

Nut that can be inserted into the slot of an aluminium profile. Used exclusively for panel mounting, all other components use T-Slot nuts.



FLANGE NUT

A flange nut is a nut with a wide edge that increases contact area, distributes pressure, and prevents loosening.



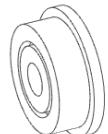
F695 BEARING

A ball bearing with a flange used in various gantry locations.



695 BEARING

Bearings are used to support and reduce friction between rotating parts in mechanical devices.



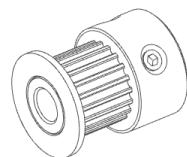
F623 BEARING

A ball bearing with a flange used . Used for drag chain brackets.



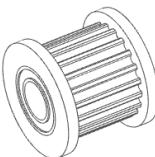
GE5C BEARING

A spherical bearing is a mechanical component enabling rotational movement and load transfer at various angles, comprising a spherical inner ring and a tilting outer ring.



PULLEY

GT2 pulley used on the motion system of the Voron.



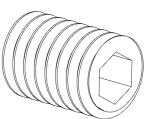
IDLER

GT2 idler used in the motion system of the Voron.



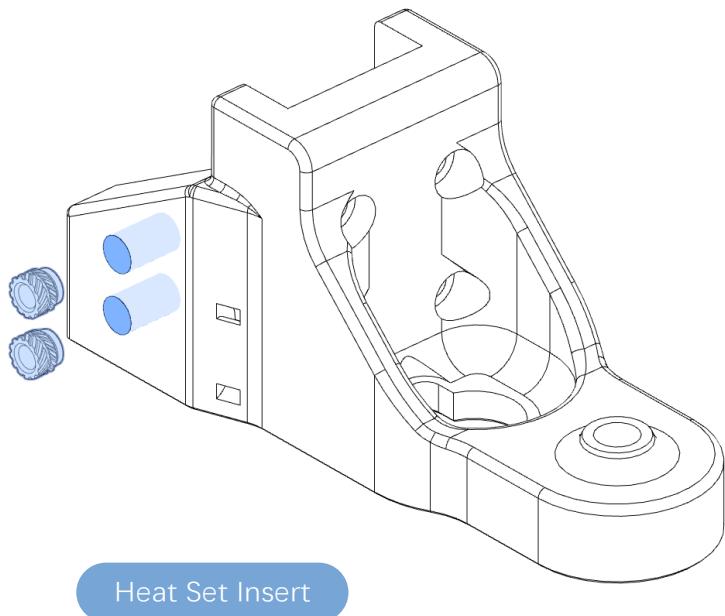
THUMB NUT

Used in the print bed as a spacer.



SET SCREW

Small headless fastner with an internal drive. Used in pulleys and other gears. Also called a grub screw.



HEAT SET INSERTS

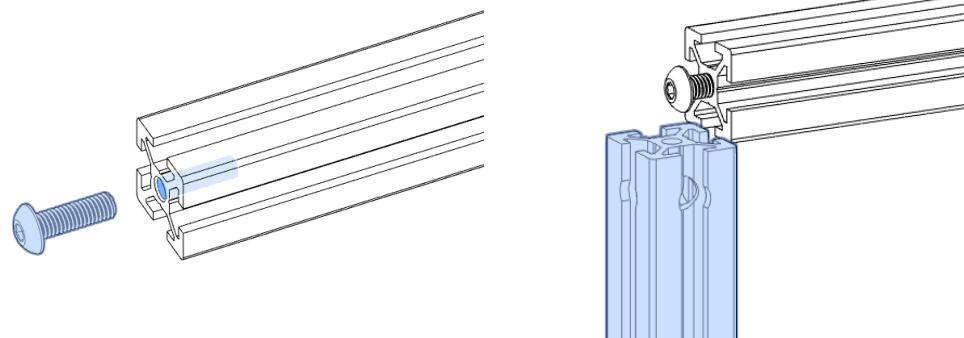
This design relies heavily on heat set inserts. Make sure you have the proper inserts (check the hardware reference for a close-up picture and the Sourcing Guide for dimensions).

If you've never worked with heat set inserts before we recommend you watch the linked guide.

You can choose to complete all the heat set inserts at once.
They are located on pages 73, 93, and 126.



<https://voron.link/m5ybt4d>

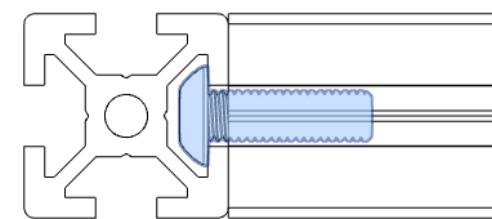
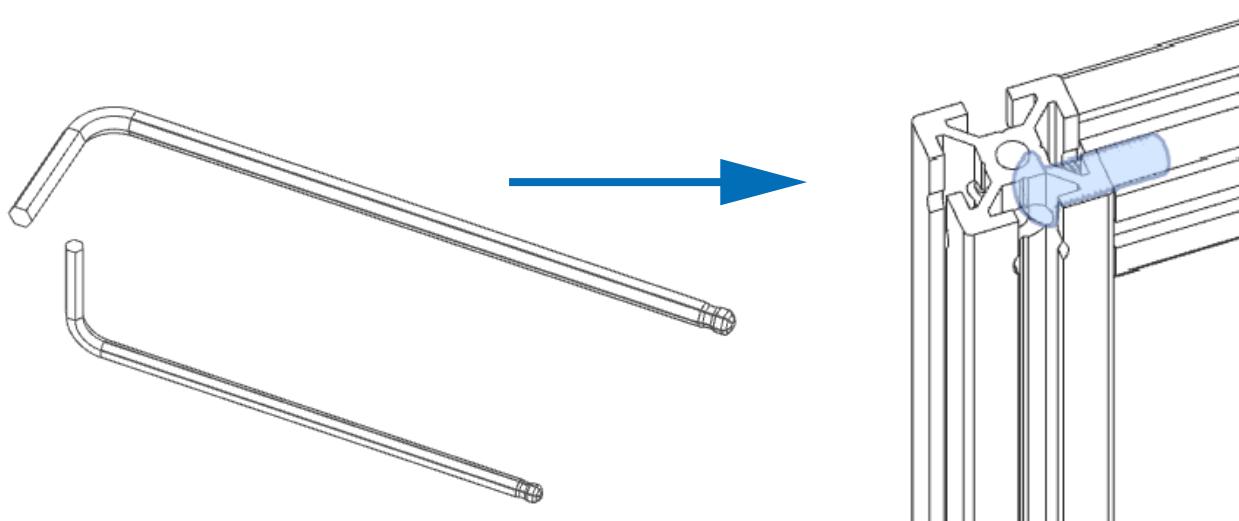


BLIND JOINT BASICS

Blind Joints provide a cost effective and rigid assembly method

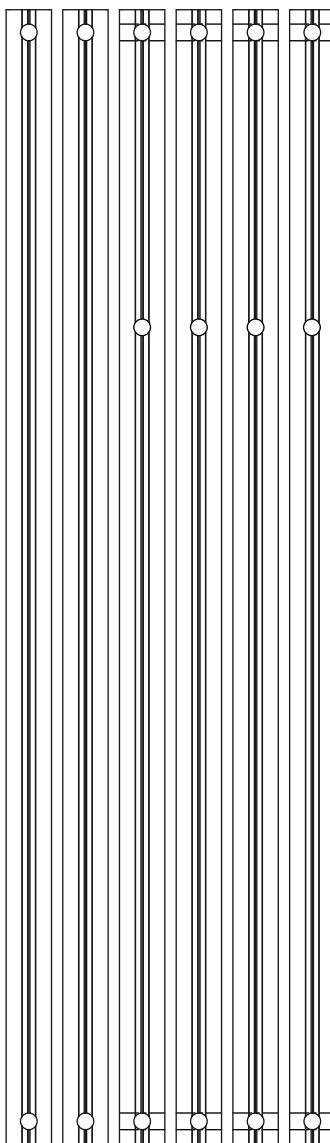
The head of the BHCS is slid into the channel of another extrusion and securely fastened through a small access hole in the extrusion.

If you've never assembled one before we recommend you watch the linked guide.



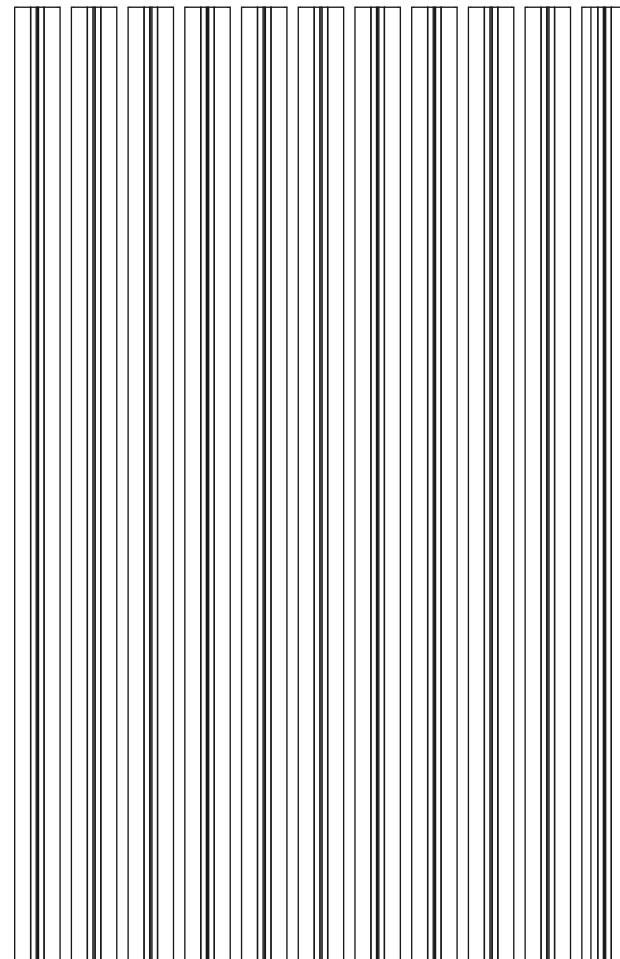
<https://voron.link/onjwmcd>





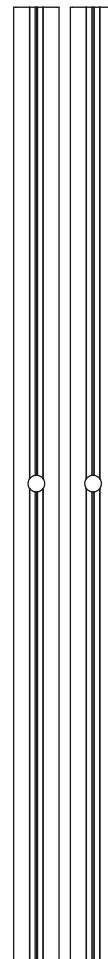
B Extrusion

500mm



A Extrusion

420mm / 470mm

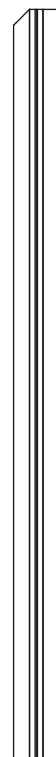


CF Extrusion

420mm / 470mm

SORT EXTRUSIONS

Collect your extrusions and sort them by length. We will highlight the extrusions used in each step and label them as shown on this page.



H Extrusion

330mm



E Extrusion

290mm / 340mm



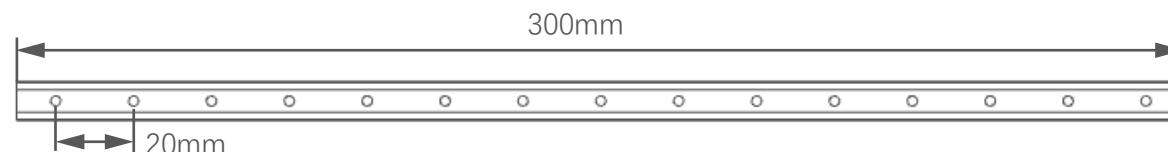
G Extrusion

282mm / 332mm

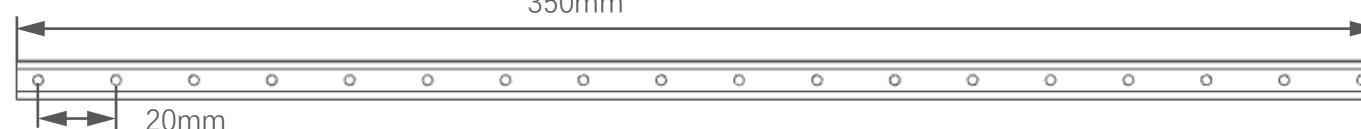
Please find these fixing strips and linear rails, and arrange them together. They will be needed soon.

300 Model

Z-axis
Fixed strips
x3PCS

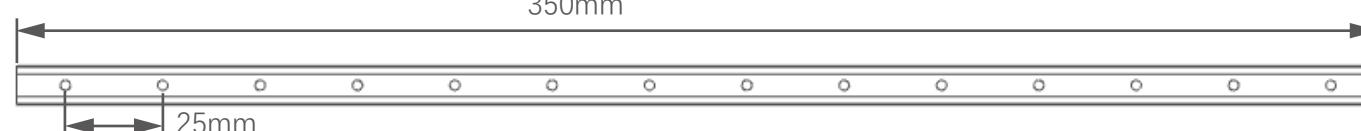


Y-axis
Fixed strips
x2PCS



350mm

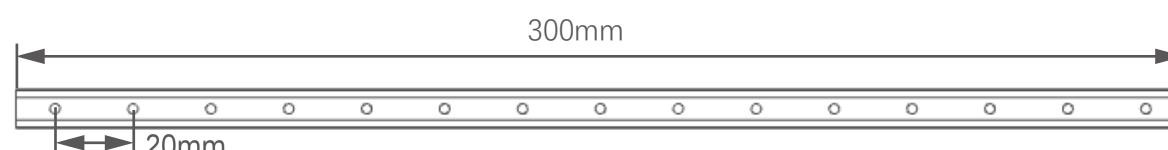
X-axis
Fixed strips
x1PCS



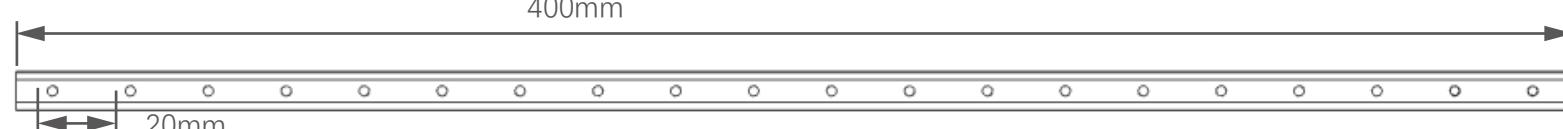
350mm

350 Model

Z-axis
Fixed strips
x3PCS

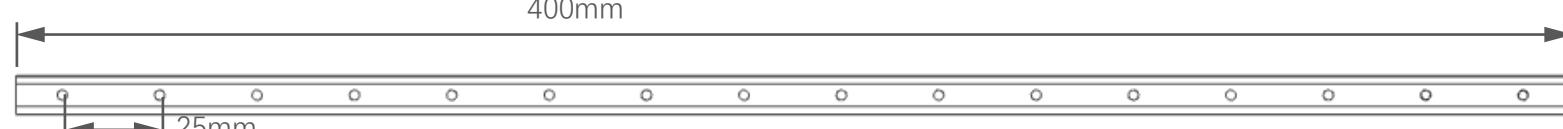


Y-axis
Fixed strips
x2PCS



400mm

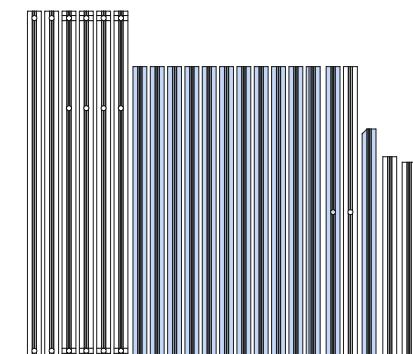
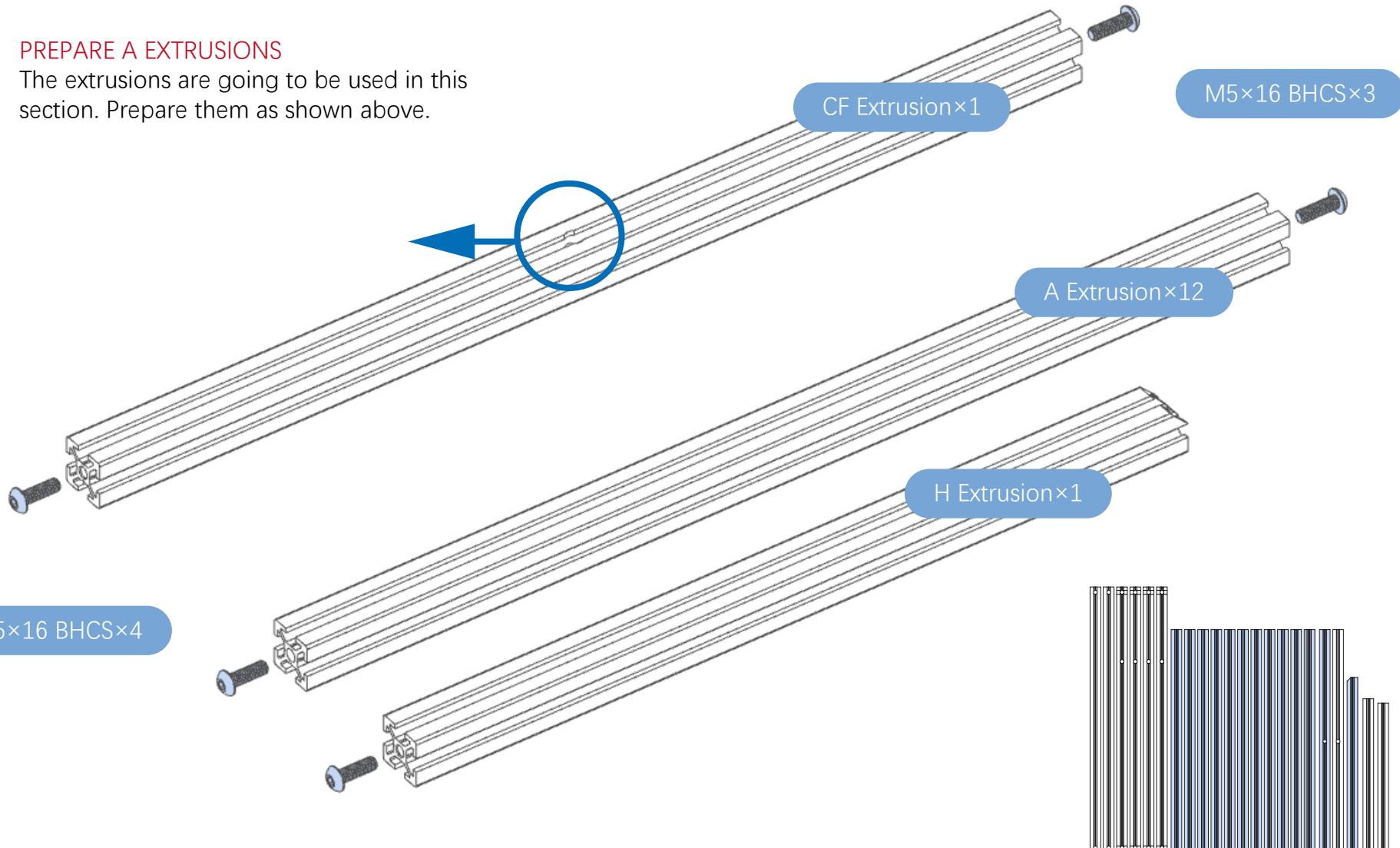
X-axis
Fixed strips
x1PCS

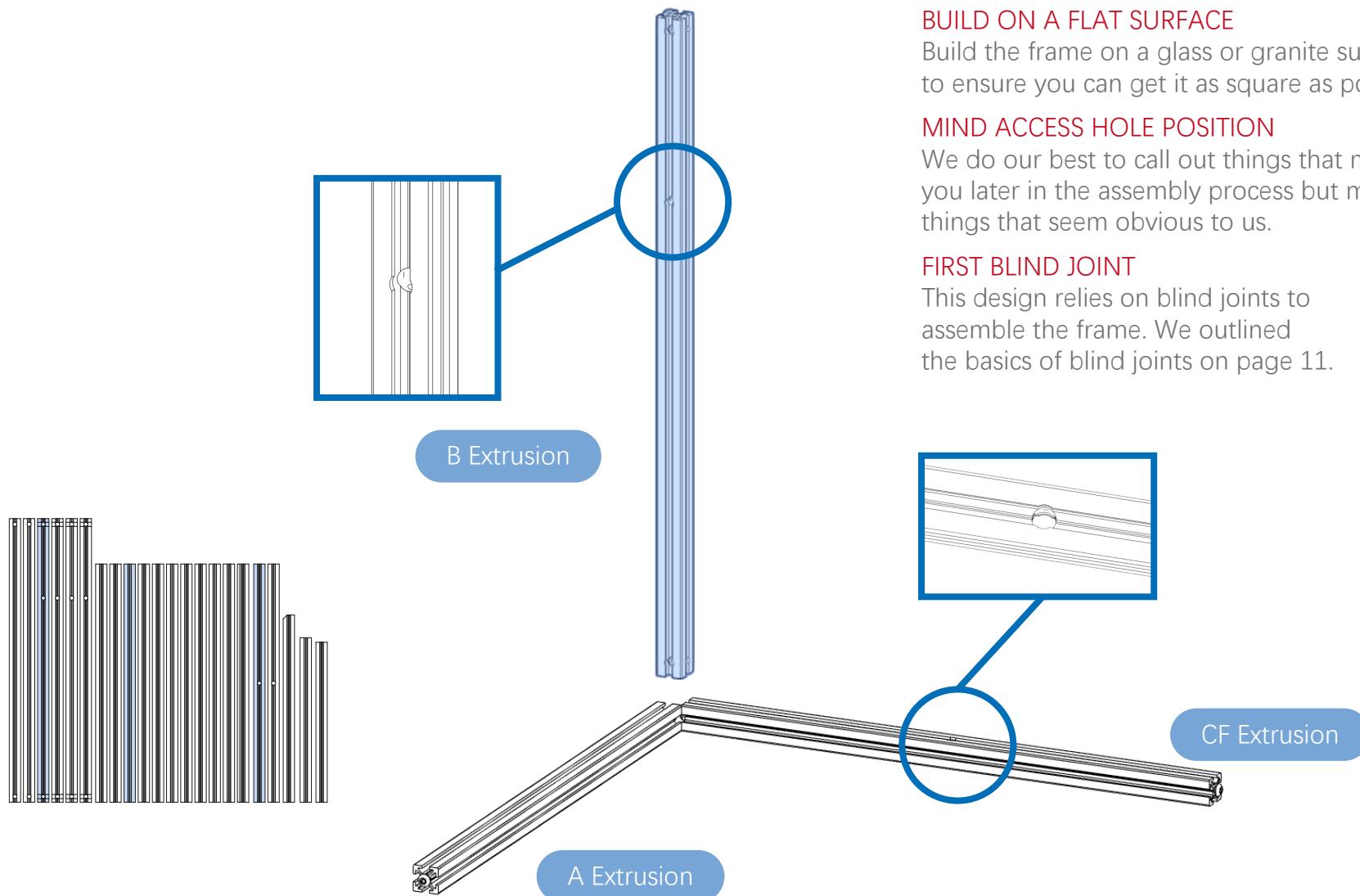


400mm

PREPARE A EXTRUSIONS

The extrusions are going to be used in this section. Prepare them as shown above.





BUILD ON A FLAT SURFACE

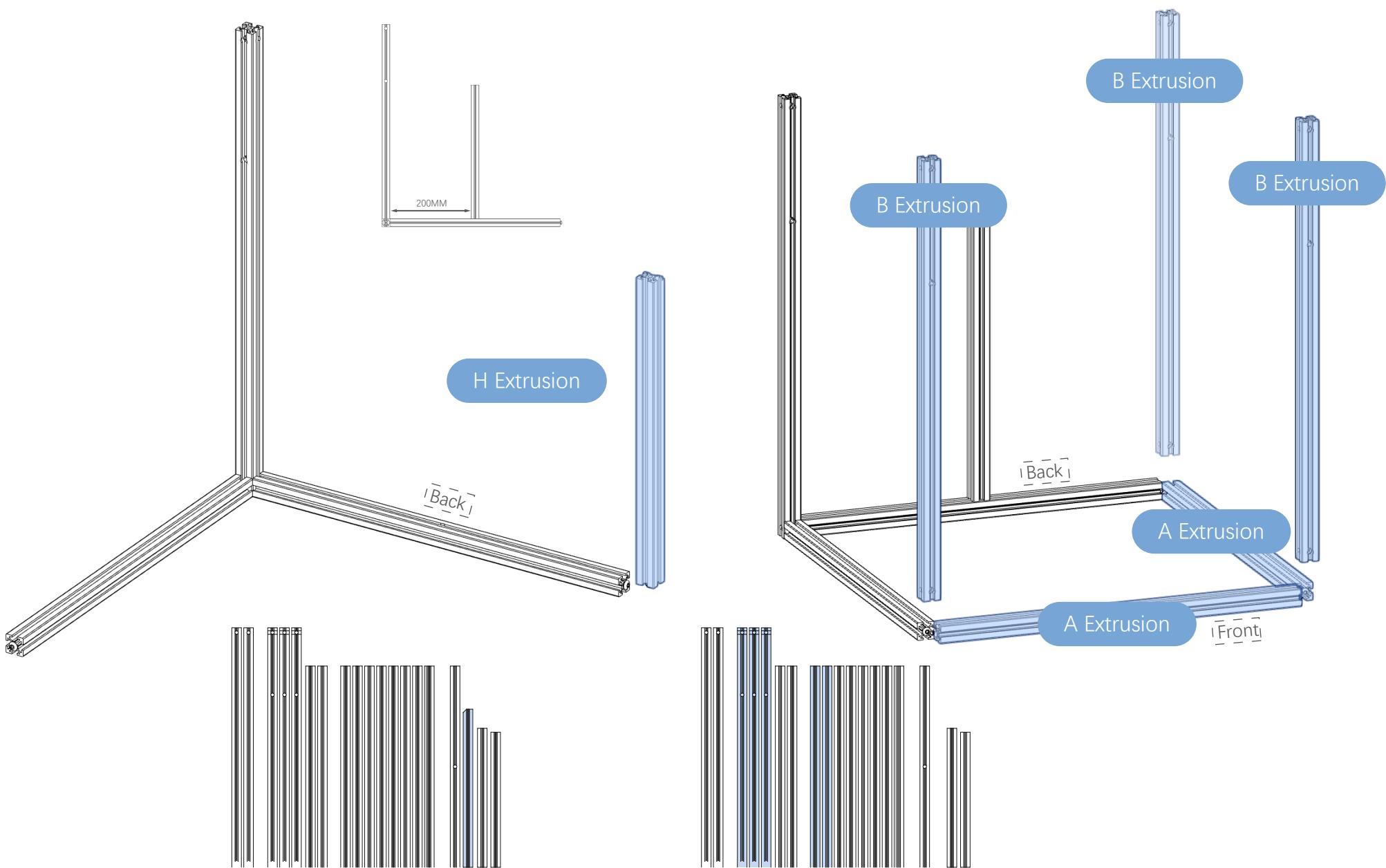
Build the frame on a glass or granite surface to ensure you can get it as square as possible.

MIND ACCESS HOLE POSITION

We do our best to call out things that may bite you later in the assembly process but may skip things that seem obvious to us.

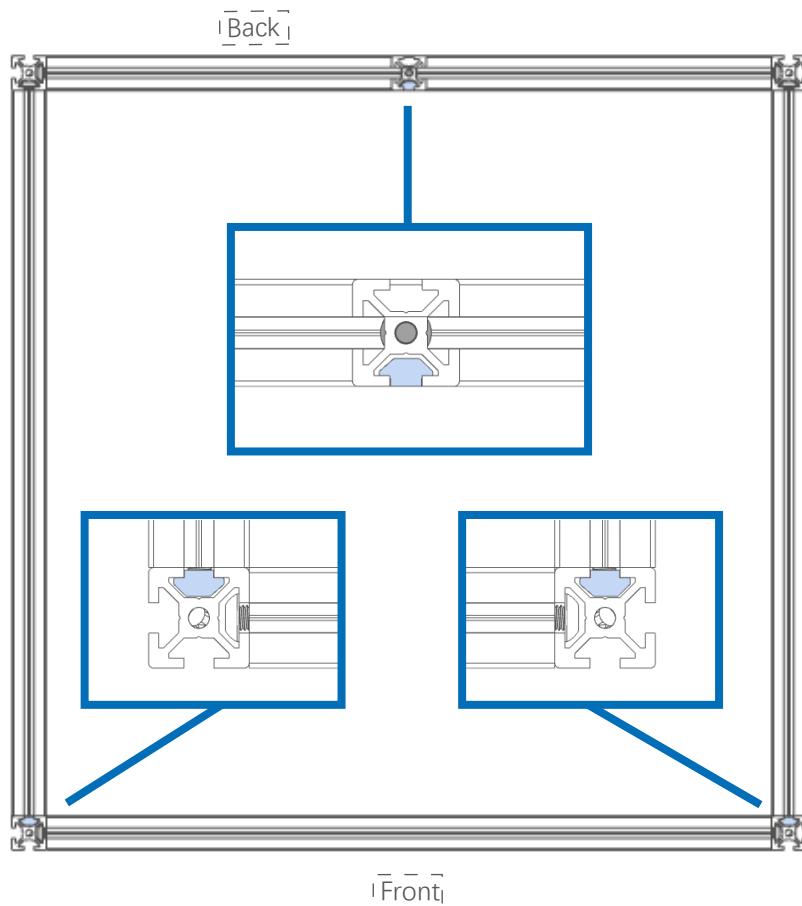
FIRST BLIND JOINT

This design relies on blind joints to assemble the frame. We outlined the basics of blind joints on page 11.

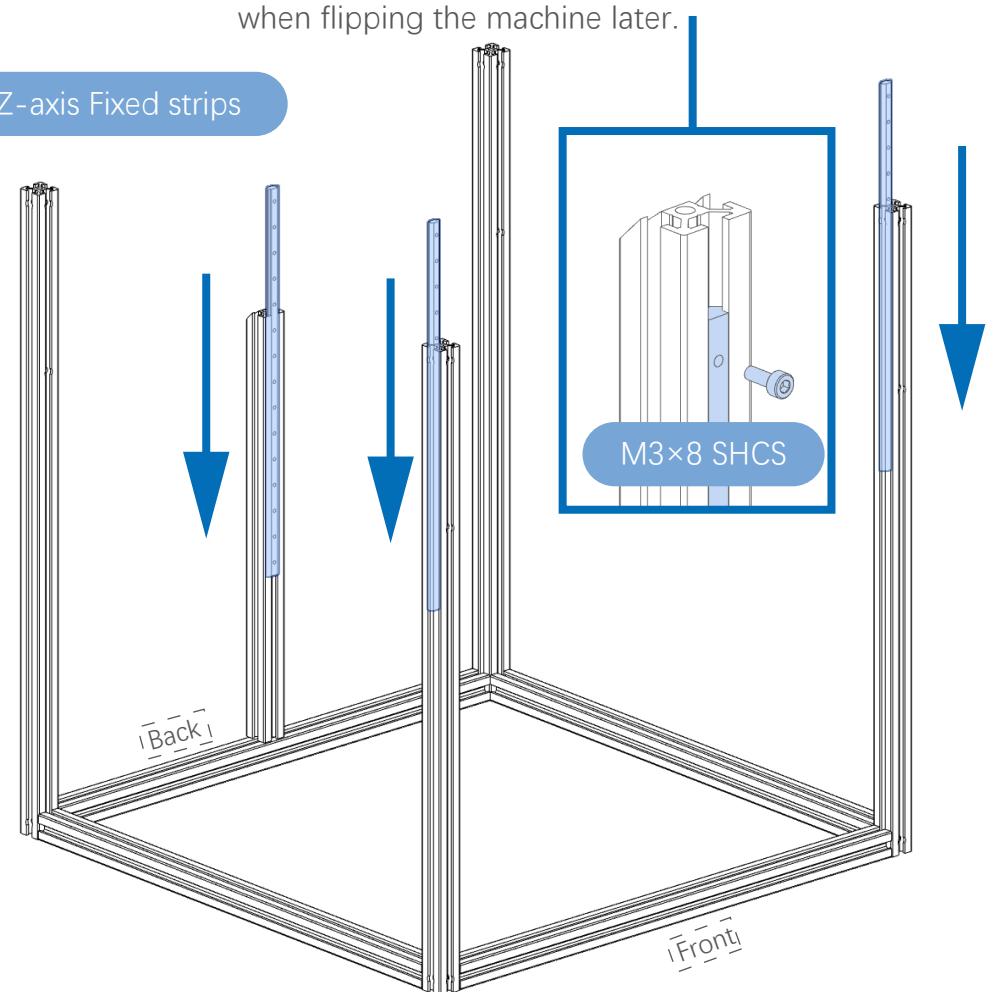


Insertion direction

Insert the fixing strips into the profile, paying attention to the insertion direction.

**Fixed strips**

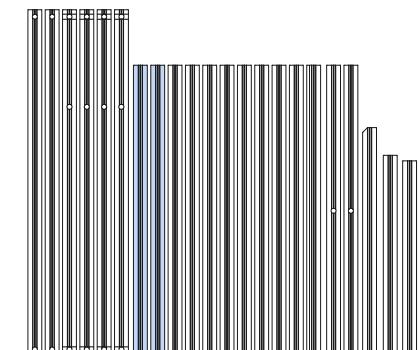
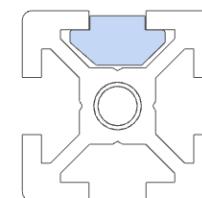
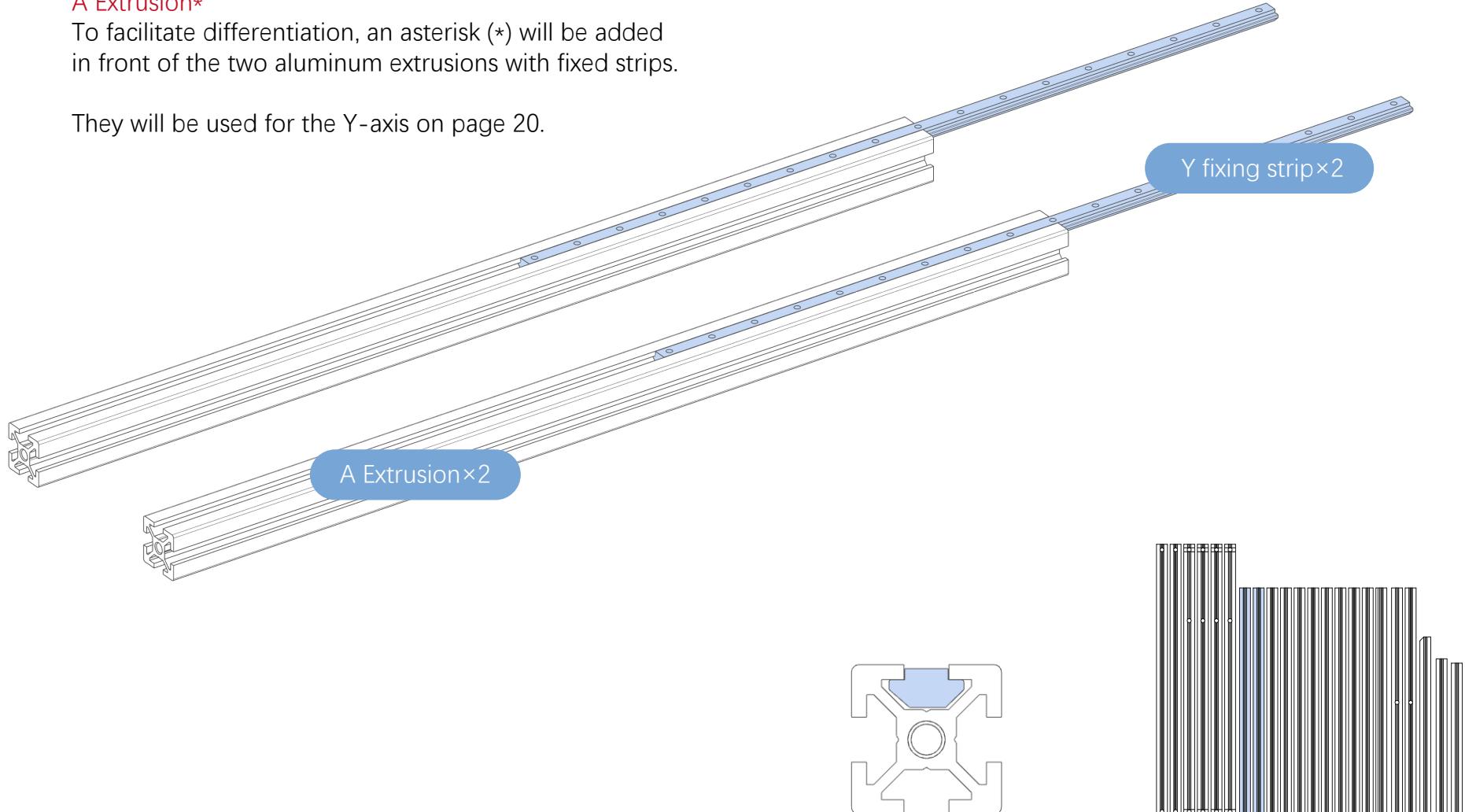
Push the three fixed strips into the deepest position and temporarily secure each with a screw to prevent the fixed strips from colliding with the aluminum extrusions when flipping the machine later.

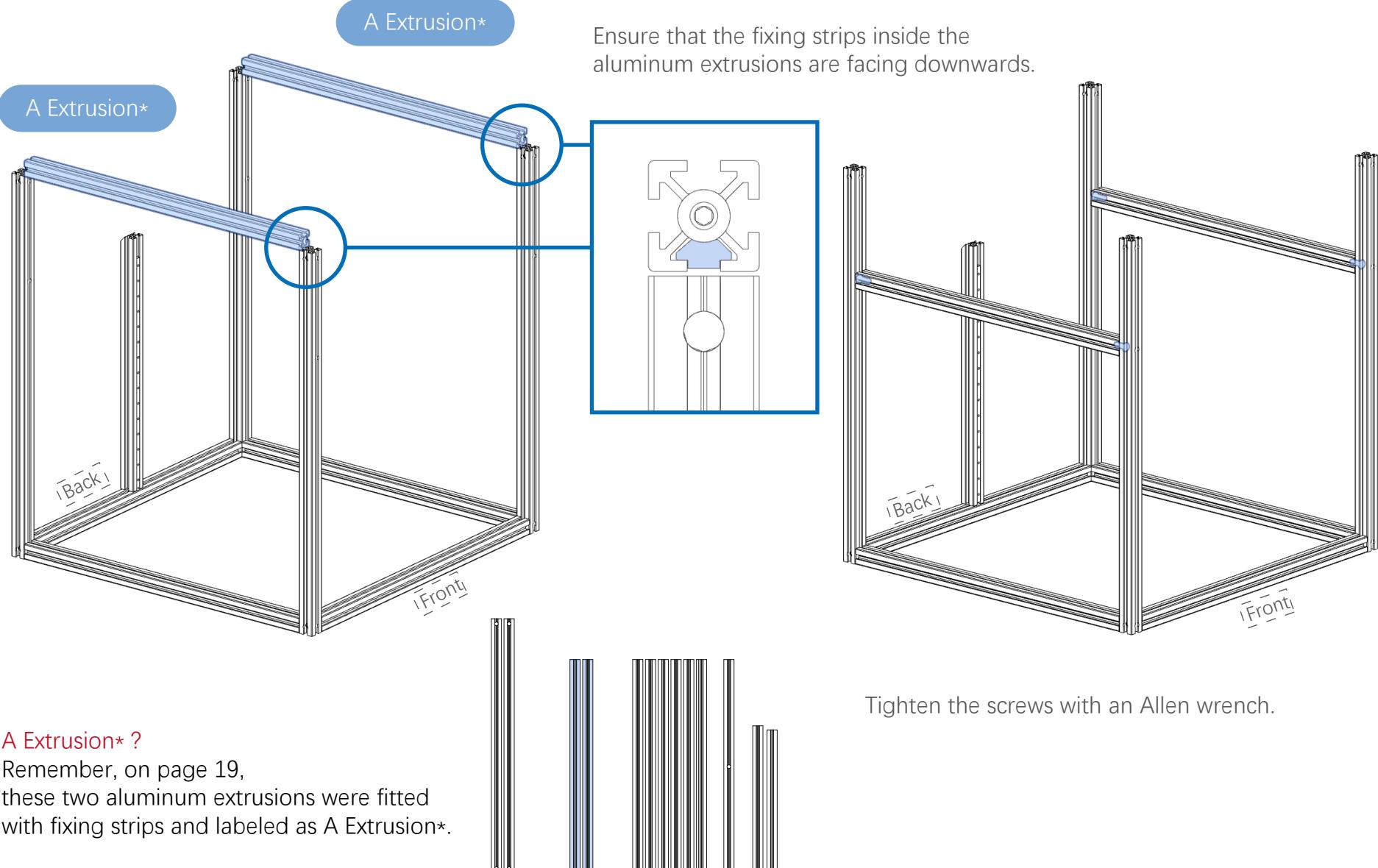


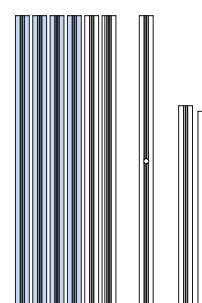
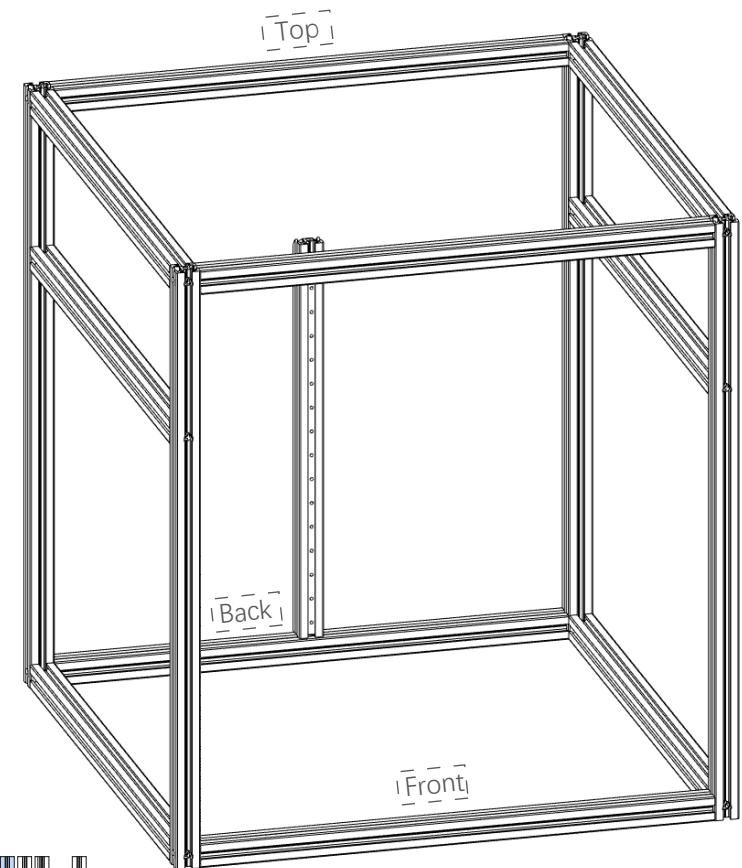
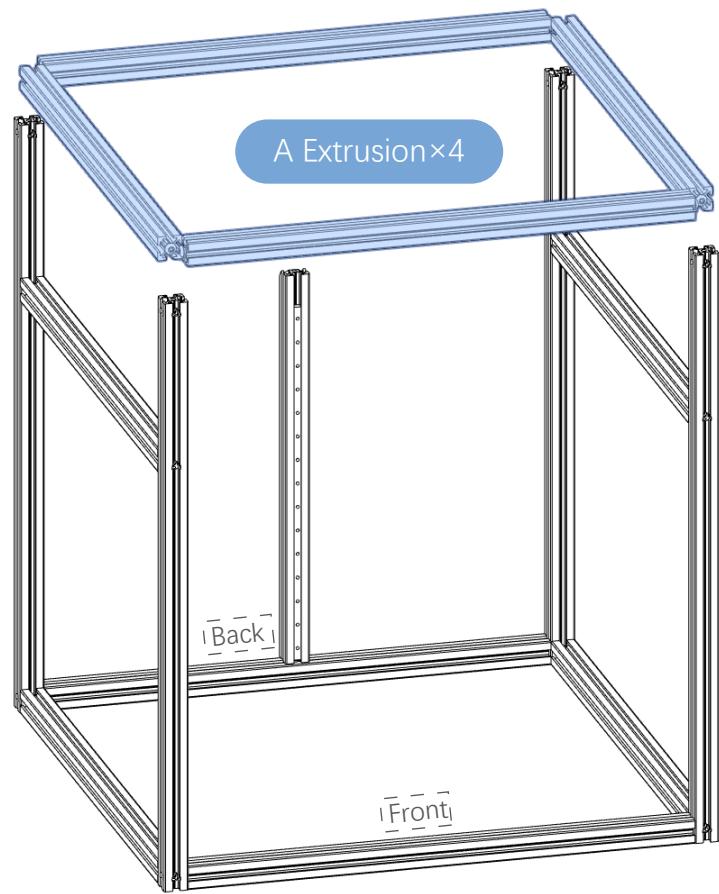
A Extrusion*

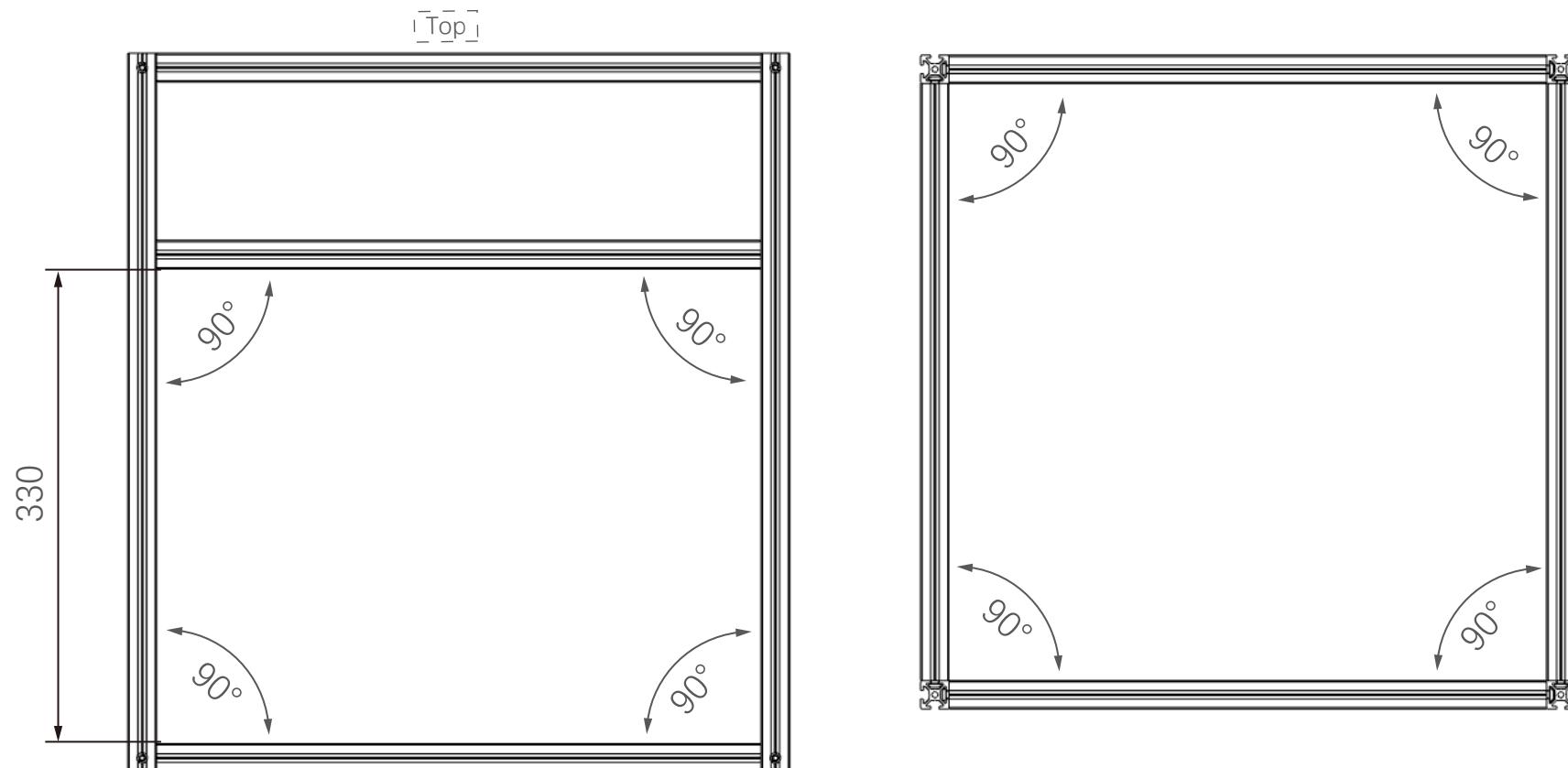
To facilitate differentiation, an asterisk (*) will be added in front of the two aluminum extrusions with fixed strips.

They will be used for the Y-axis on page 20.





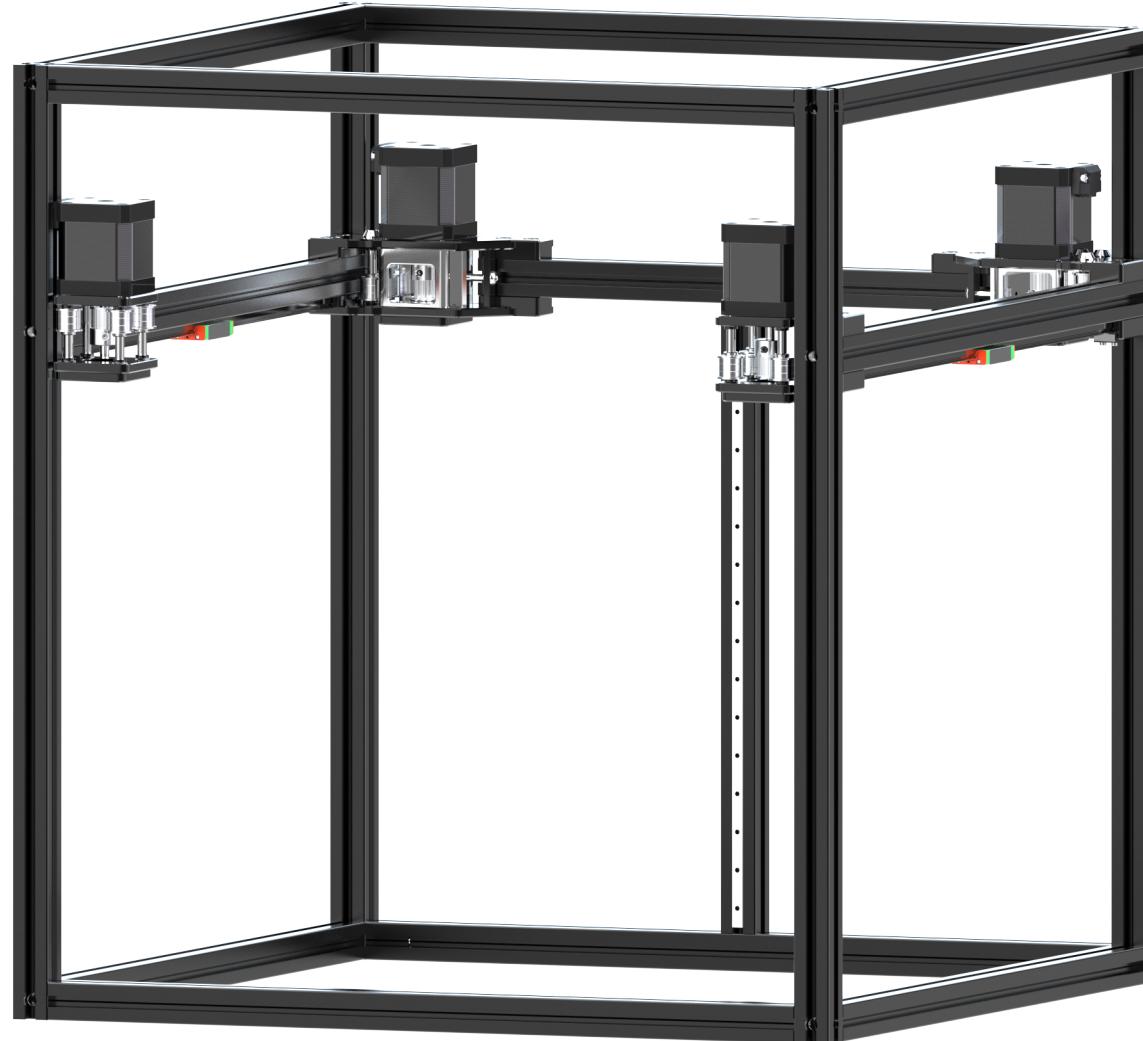


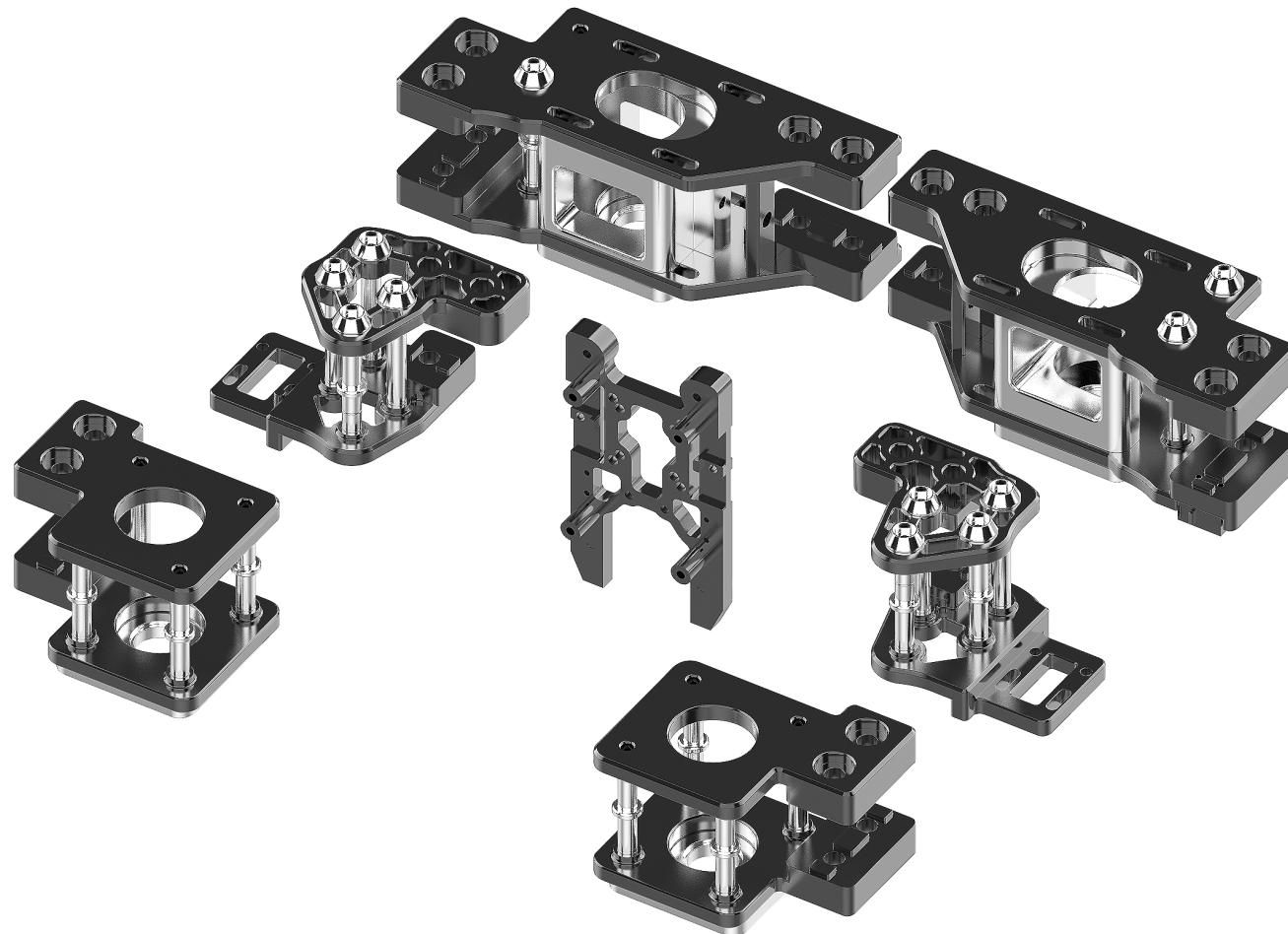


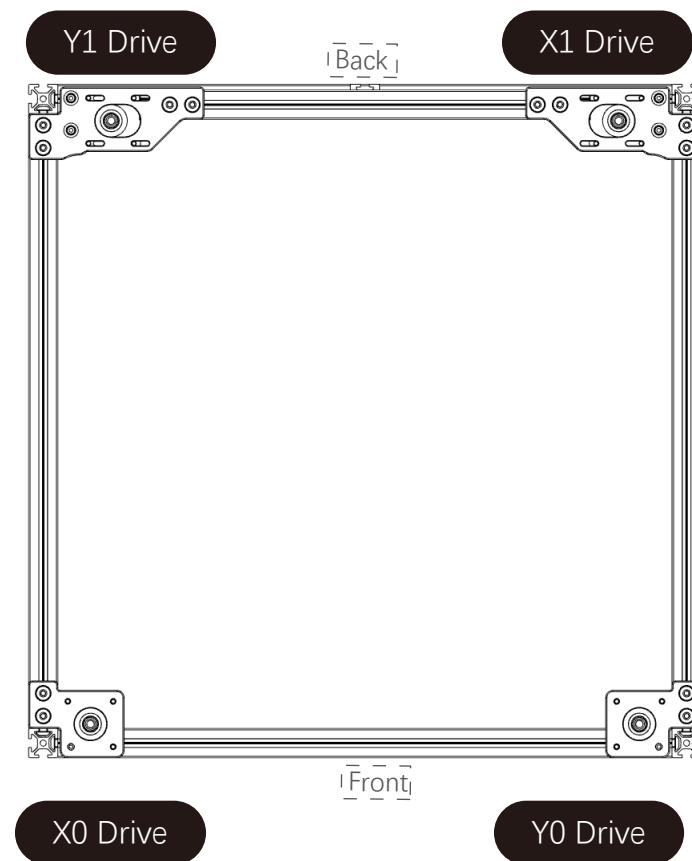
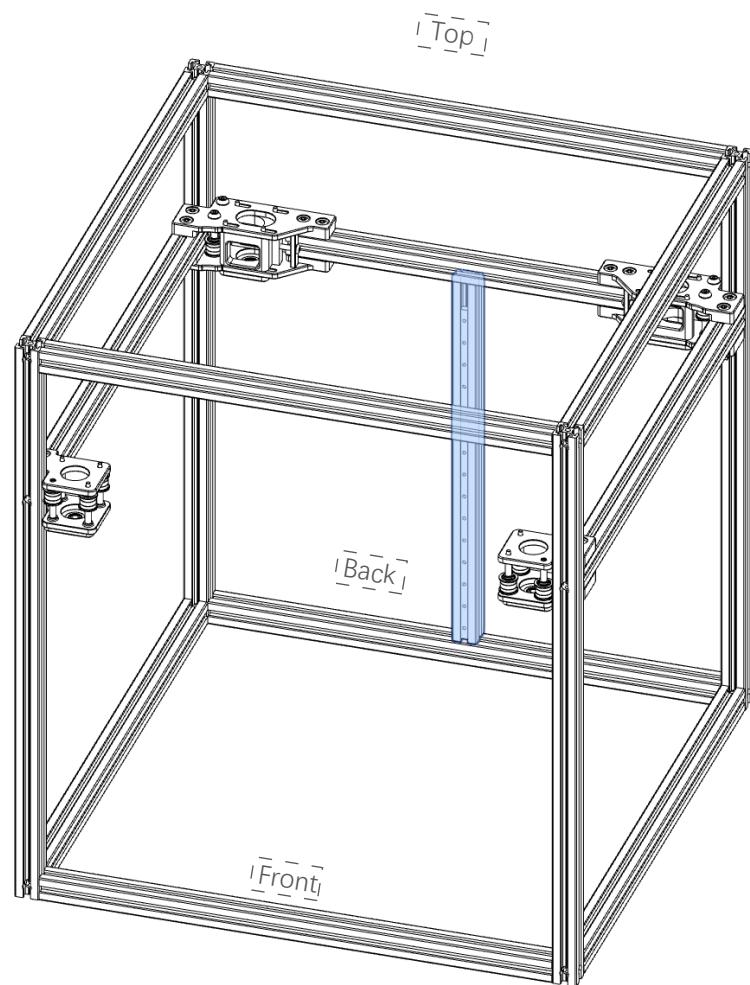
<https://voron.link/kdtpzam>

CHECK FOR SQUARENESS

Verify the angle of all corners and the overall squareness by measuring the diagonals. Refer to the second half of the linked video for additional information.





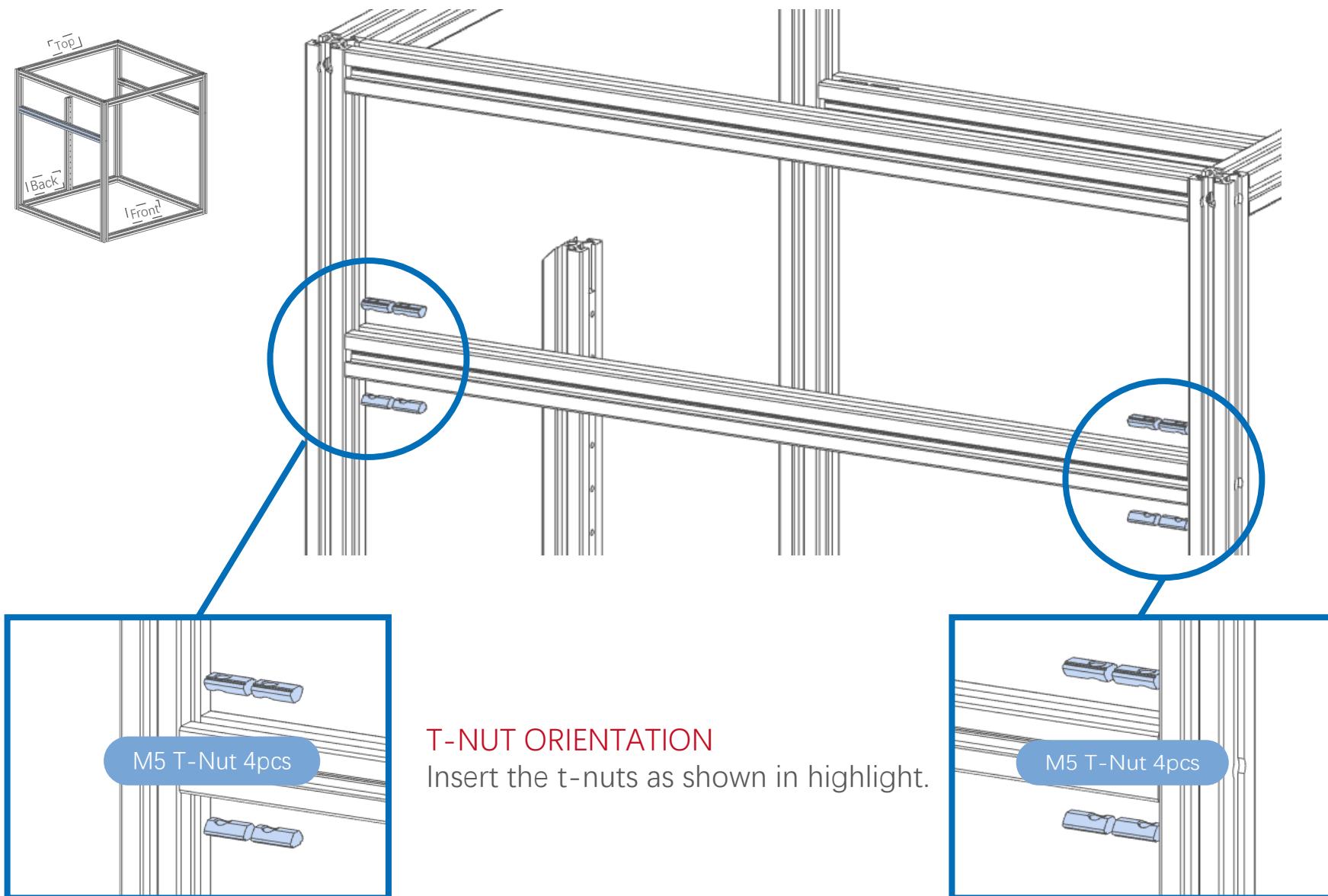


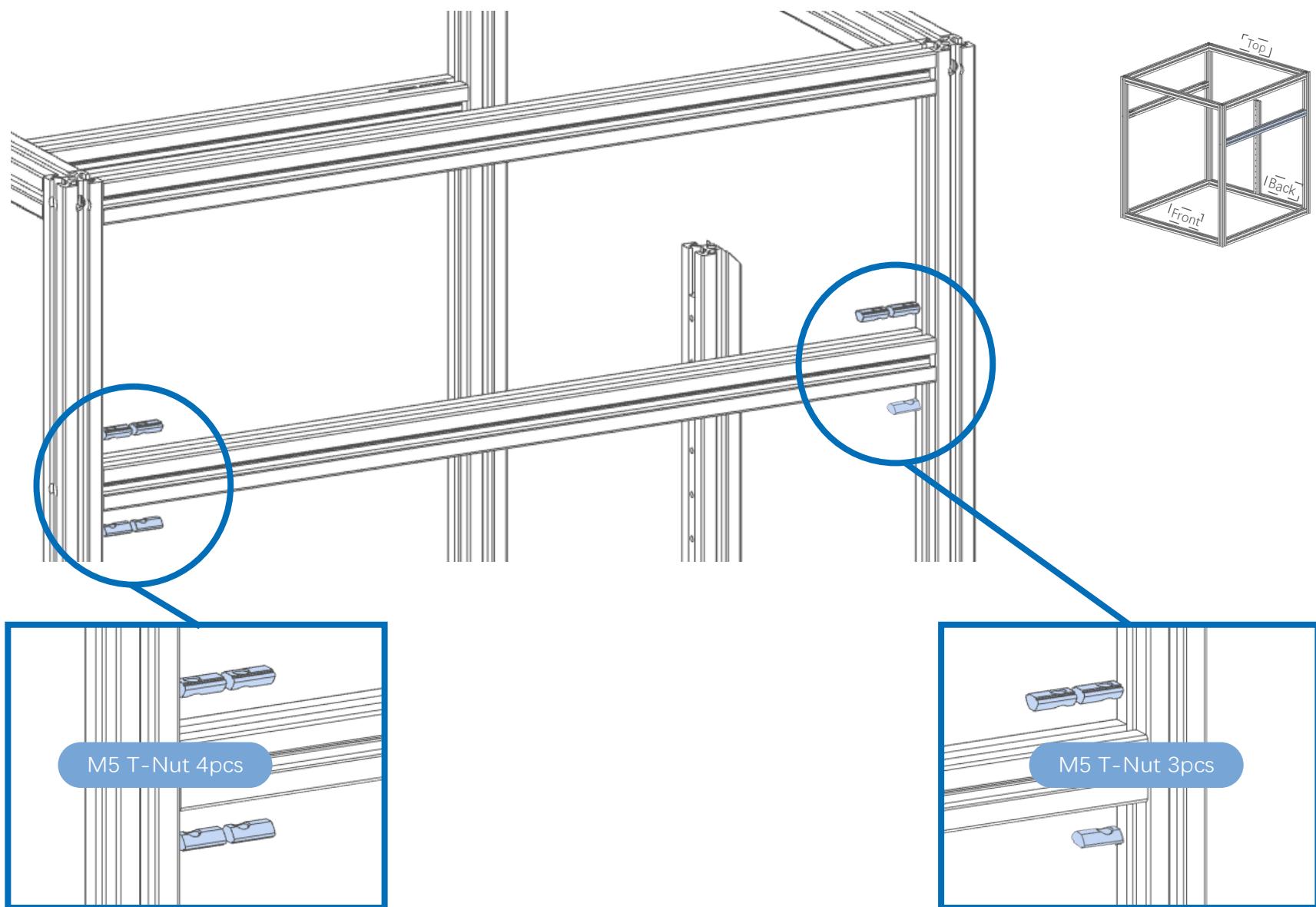
WHY IS THIS HERE?

As you likely skipped over the advice to flip through the entire manual we added graphics like these to assist you with the orientation of the part before you actually put them on the printer.

OVERVIEW

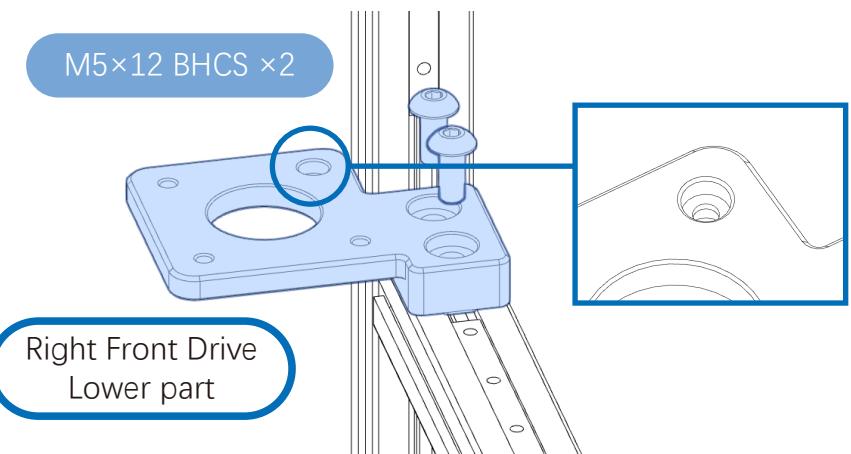
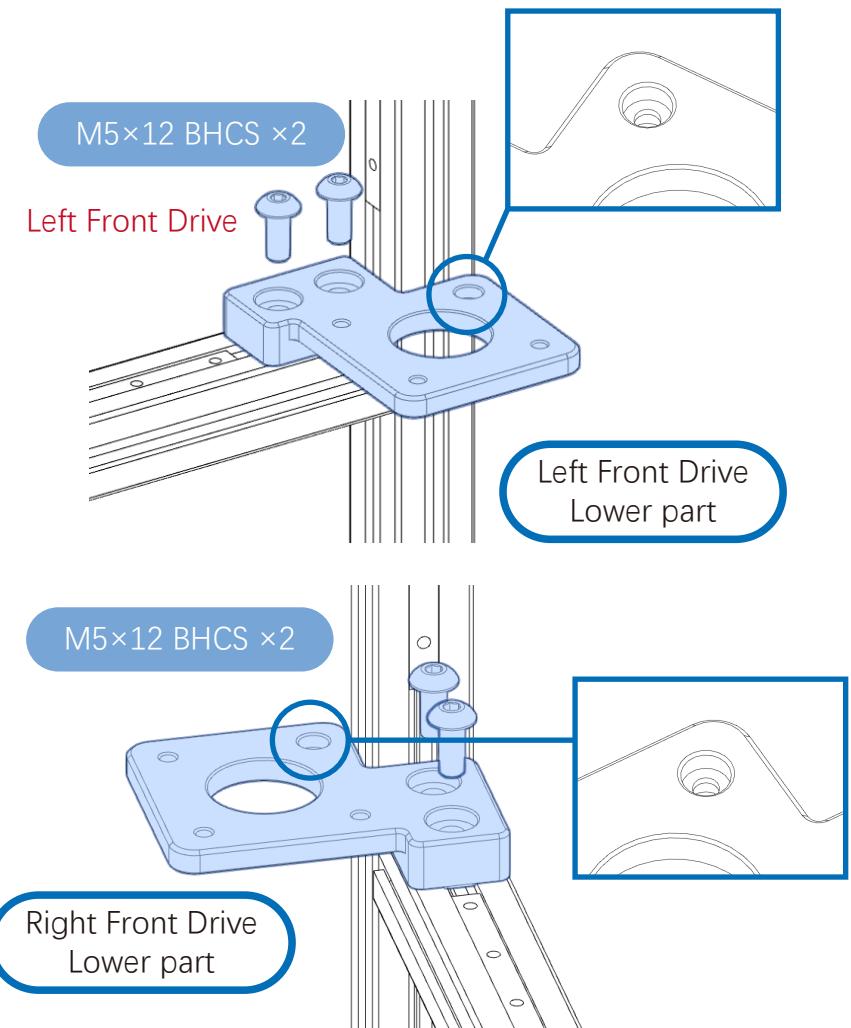
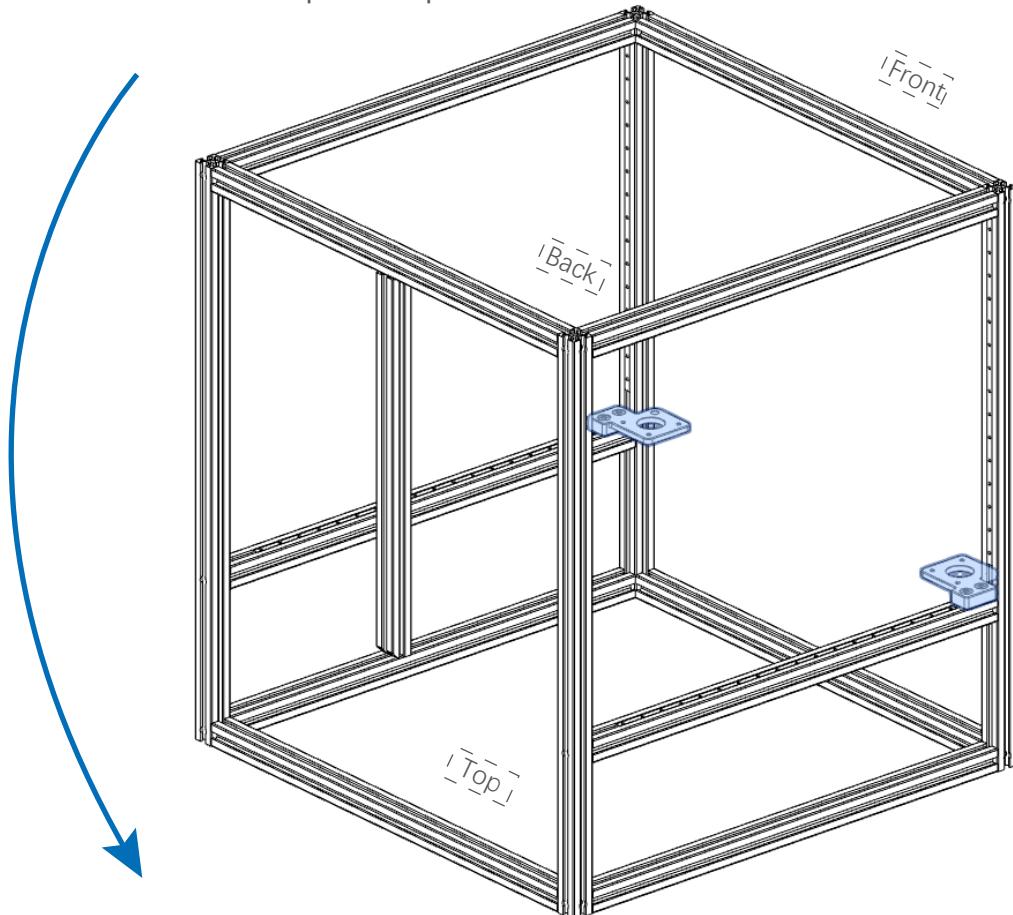
Individual chapters start with an overview of the components that will be built/added to the printer in the chapter.



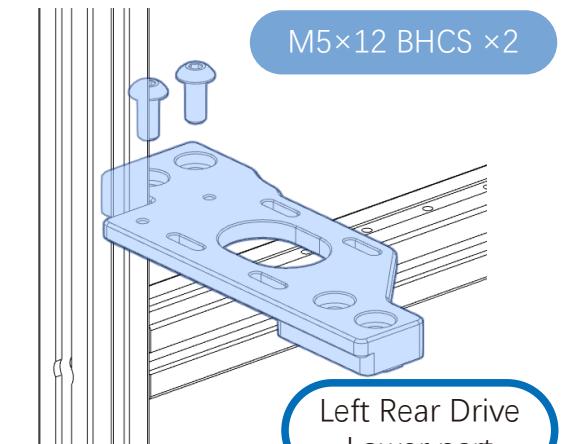
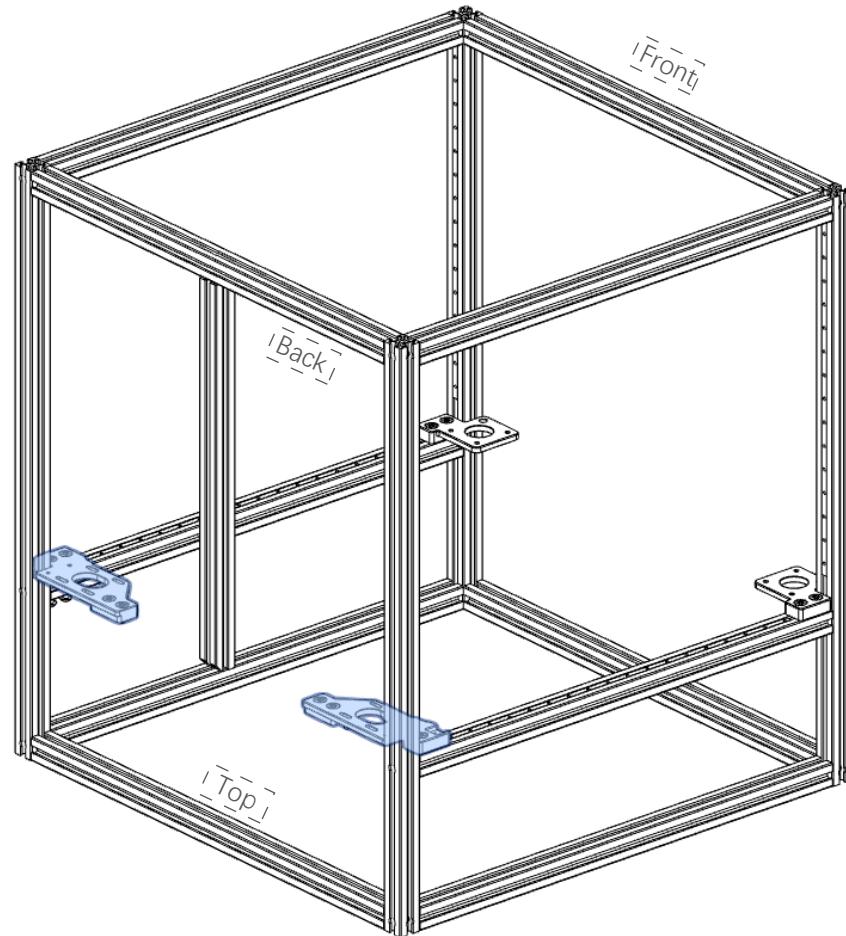


UPSIDE DOWN ASSEMBLY

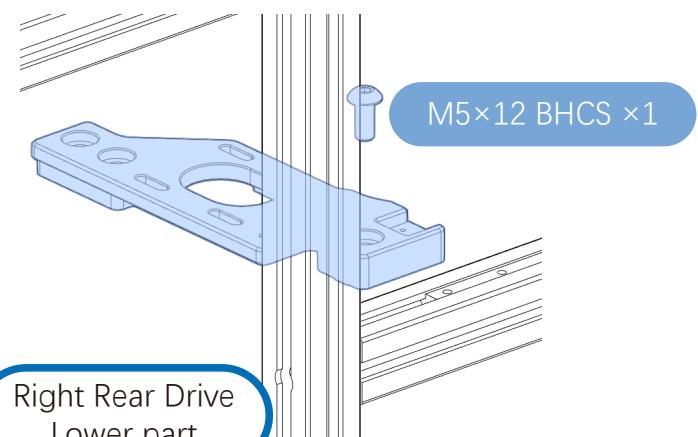
For ease of assembly, it is recommended that the printer be turned upside down for ease of subsequent operation.



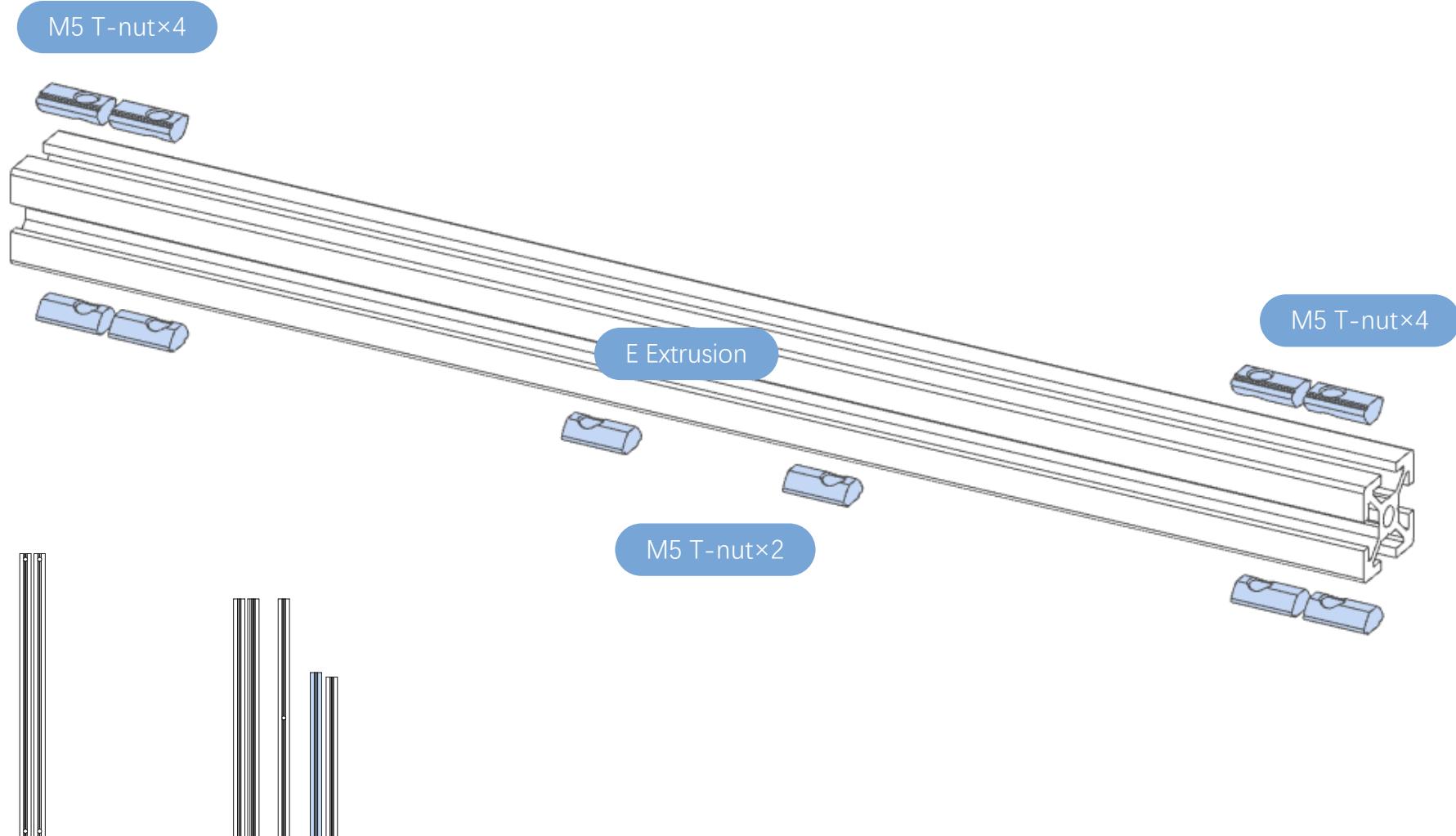
The front drive lower pieces each have a stepped hole, distinguishing them from the upper pieces.

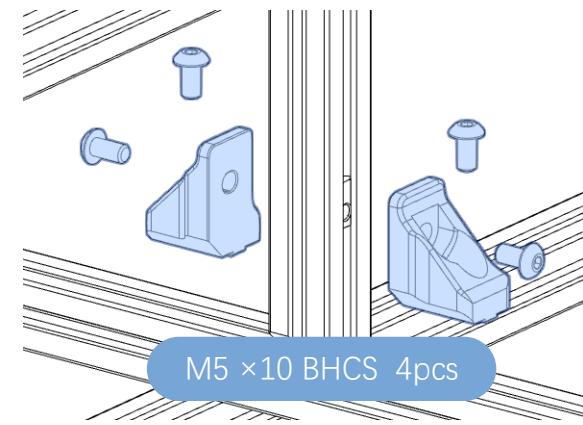
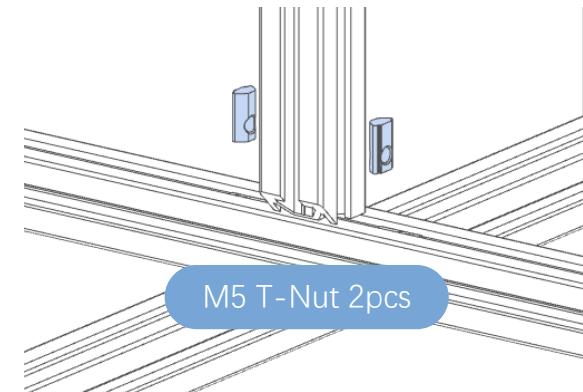
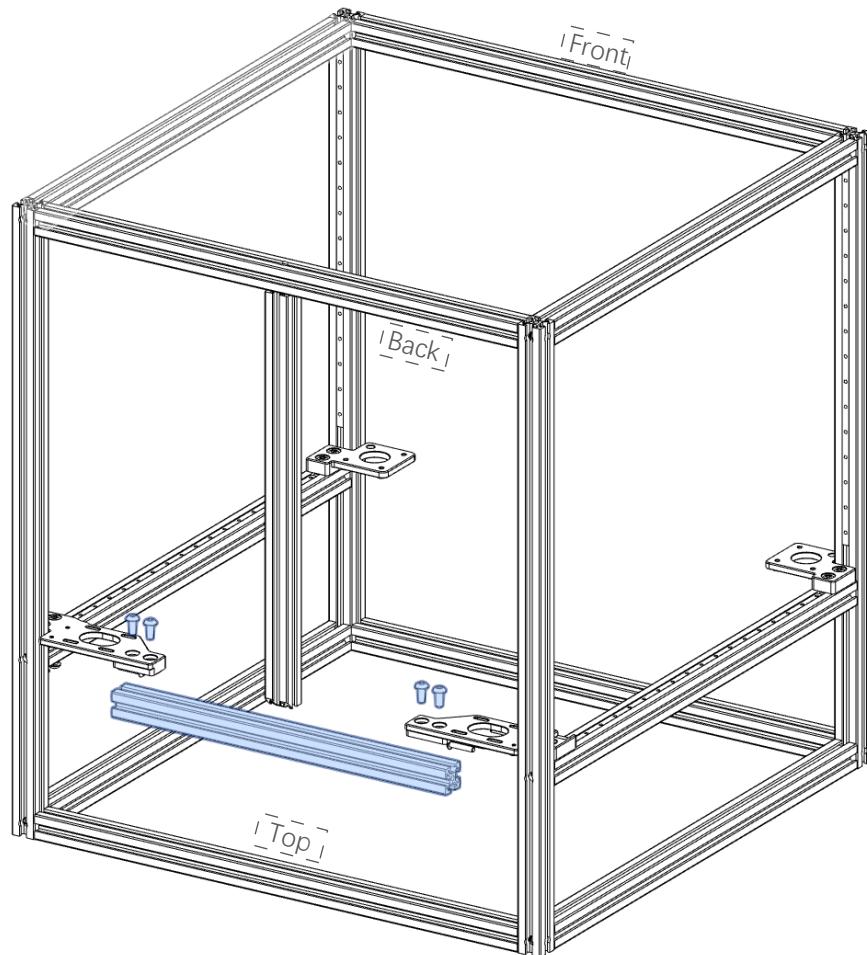


Left Rear Drive
Lower part



Right Rear Drive
Lower part

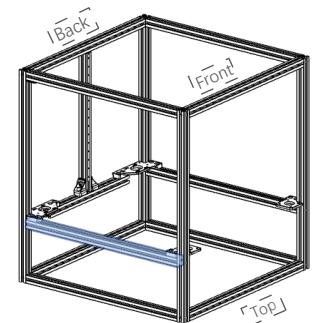
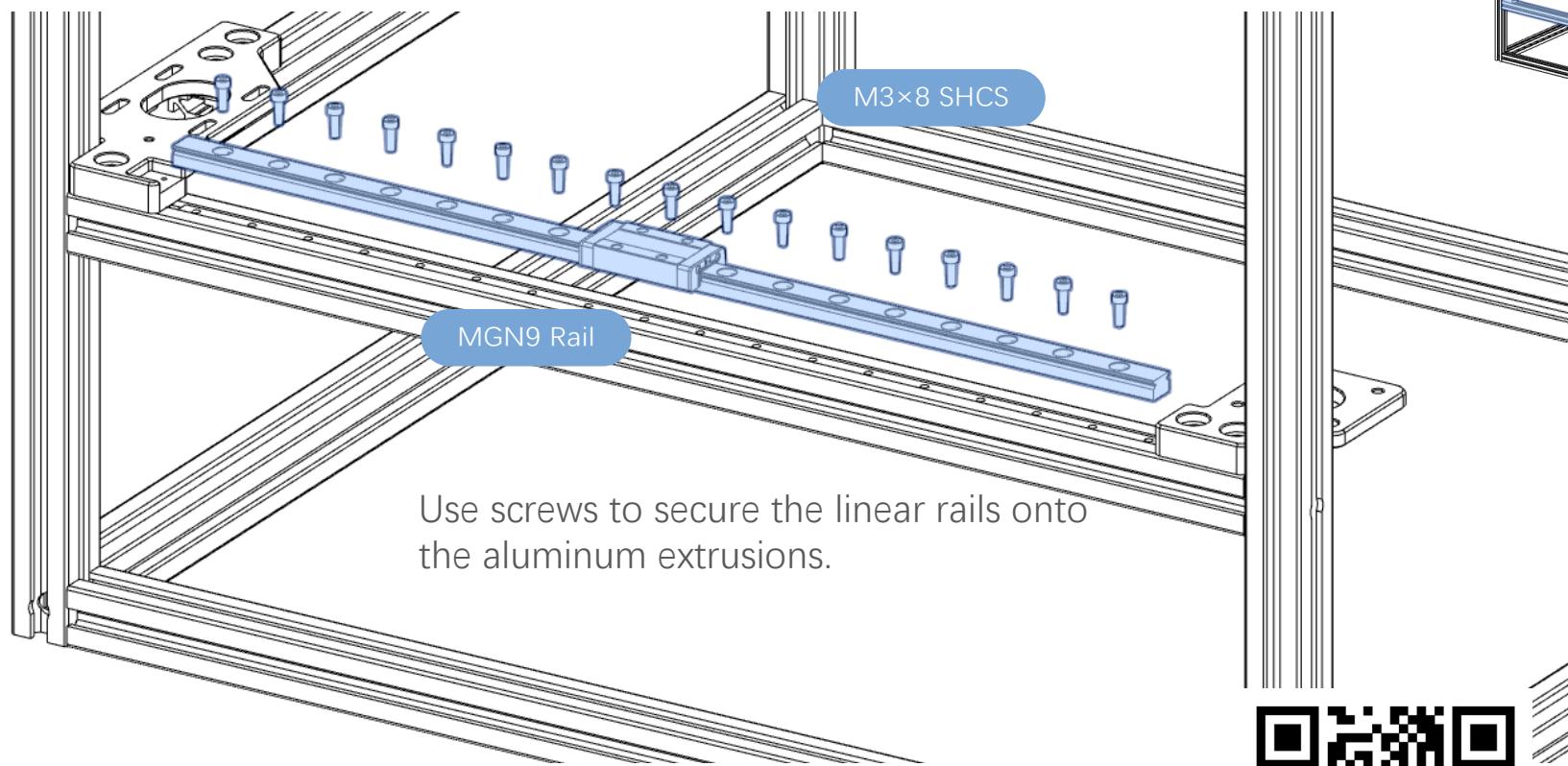




Note that ABS prints are used here

Rubber Plugs on Slider

You may notice rubber plugs on both sides of the slider. These effectively prevent the slider from accidentally dislodging, so do not attempt to remove them before installing the screws.



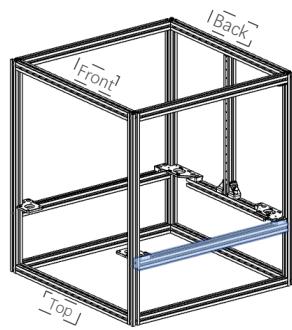
LINEAR RAILS - PREPARATION AND MOUNTING

Most linear rails arrive with shipping oil. To ensure a smooth gliding motion and long service life, this oil needs to be removed and its rail carriage greased.

See the Voron sourcing guide for a recommended list of lubricants. We attached a link to a video guide to get you started.

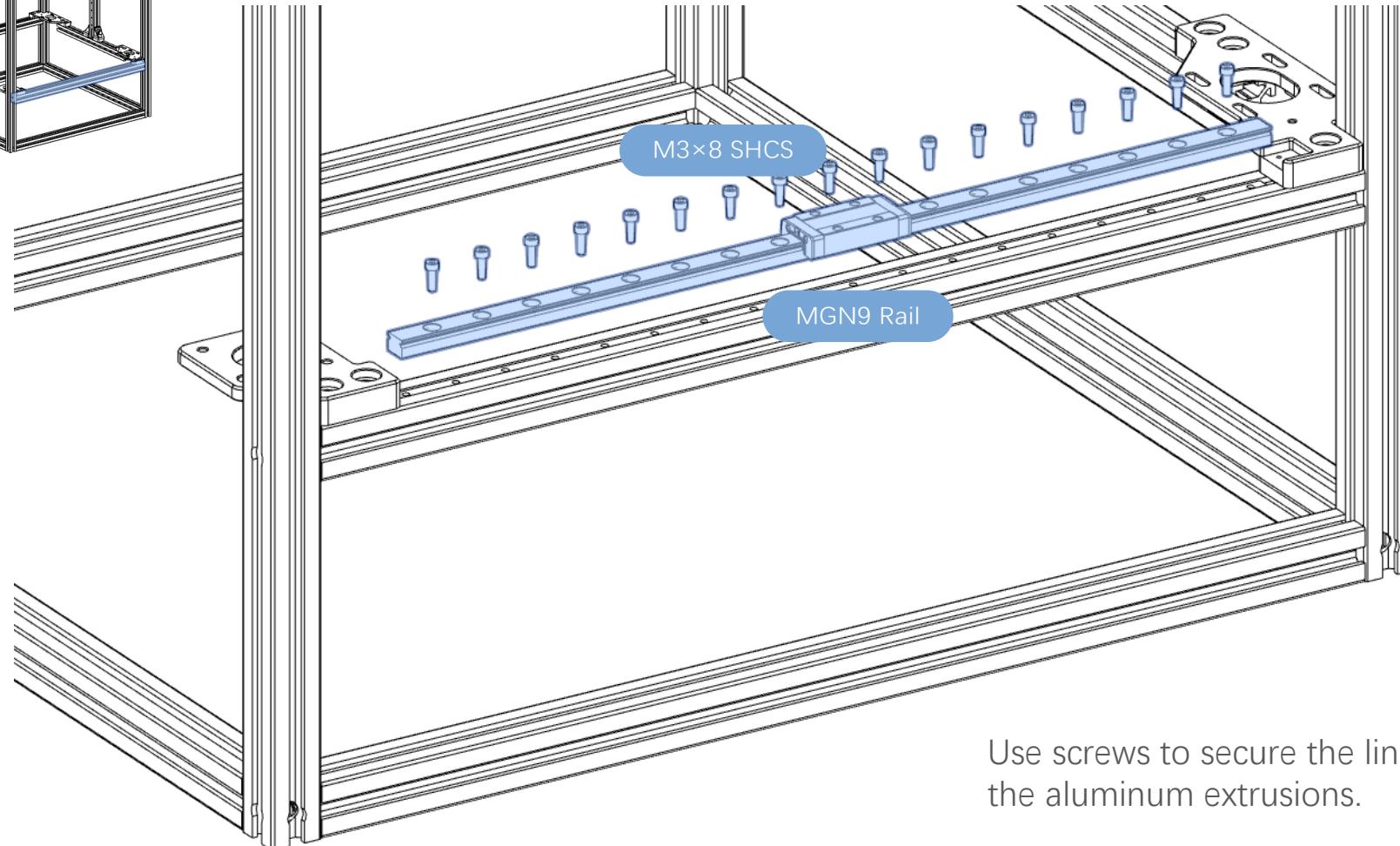


<https://voron.link/agu0nes>

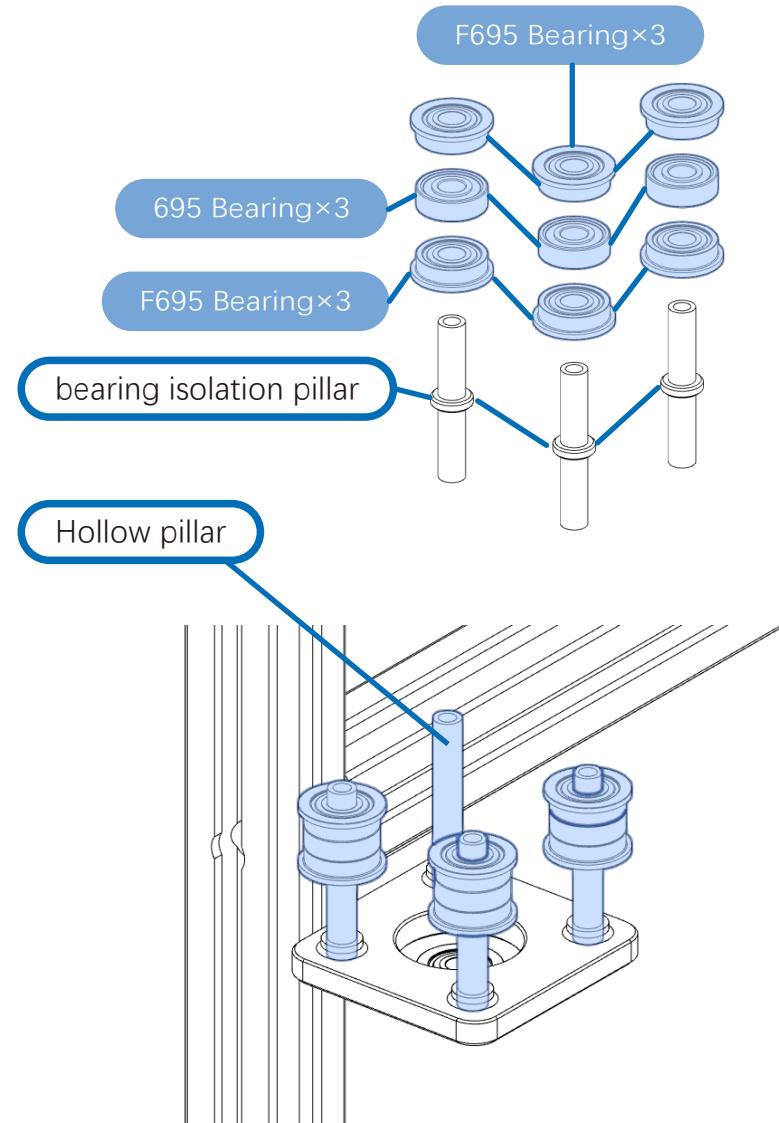
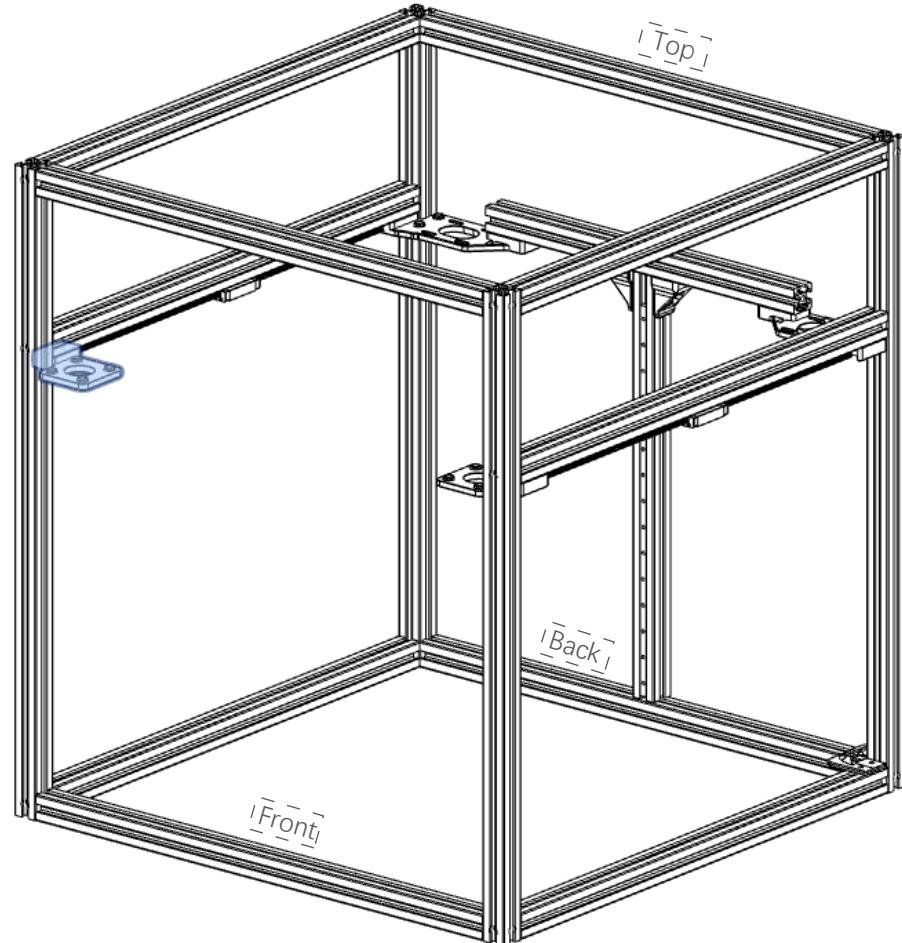


Rubber Plugs on Slider

You may notice rubber plugs on both sides of the slider. These effectively prevent the slider from accidentally dislodging, so do not attempt to remove them before installing the screws.

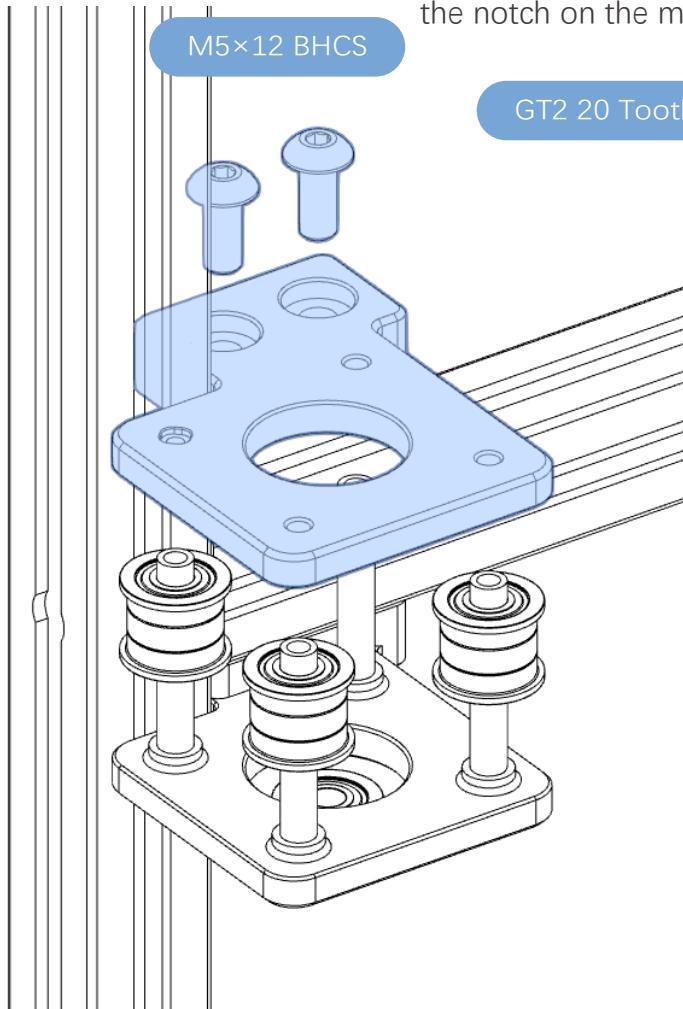


Use screws to secure the linear rails onto the aluminum extrusions.

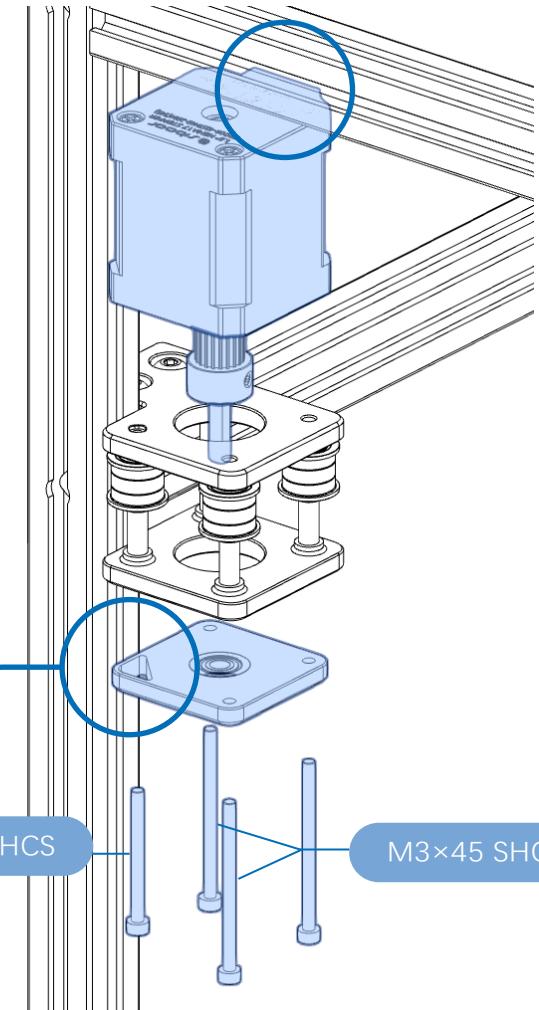


Direction

The set screws should align with the notch on the motor shaft.

**MOTOR ORIENTATION**

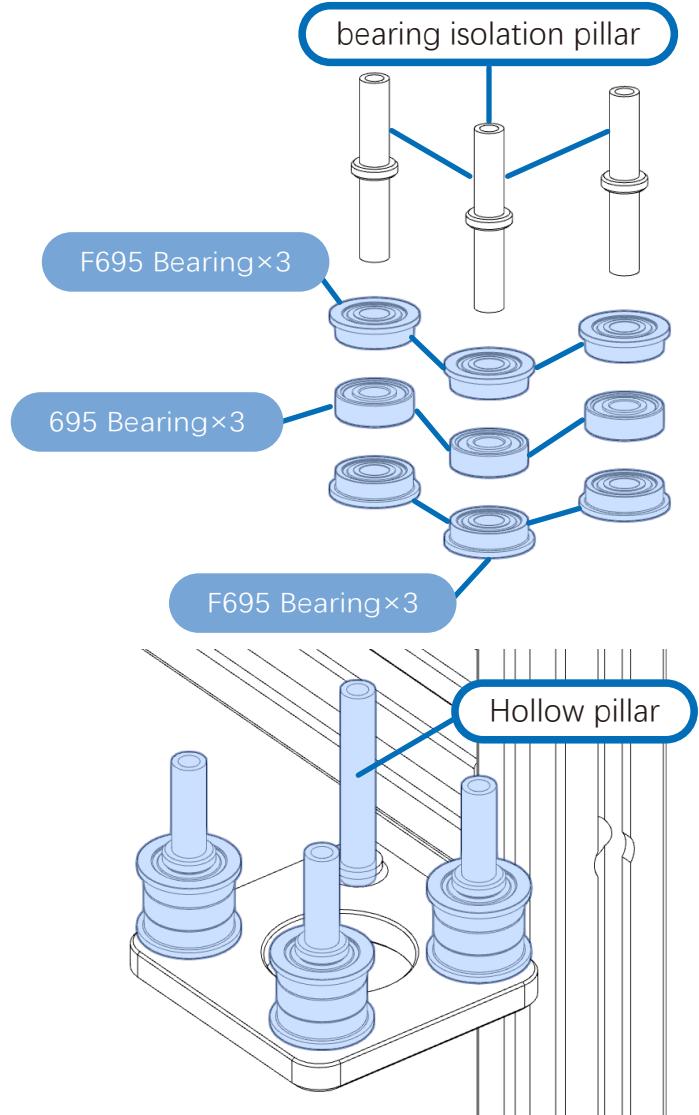
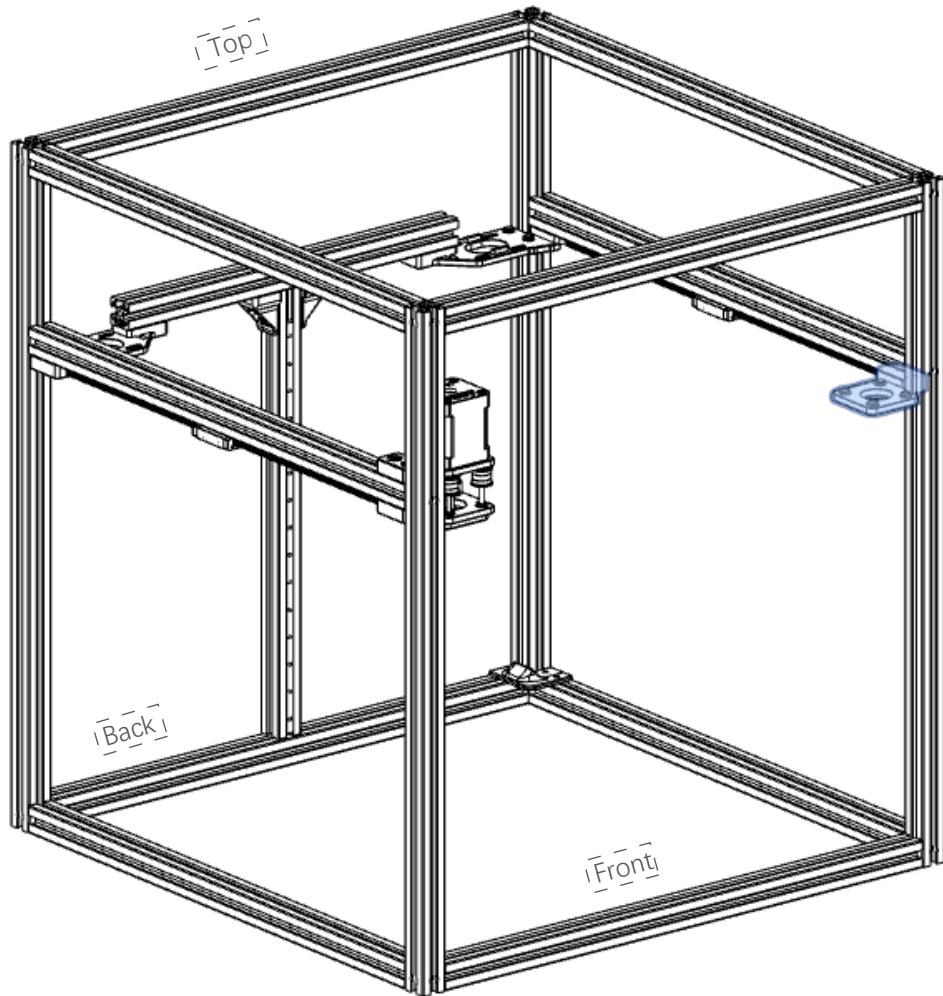
Pay attention to the orientation of the cable exit.

**Thread locker**

Consider adding threadlocker for the specific screw (e.g., the Voron motor mount screw). This screw often loosens and causes tension issues. Note that some threadlockers might lock too tightly for future adjustments. If thread sealant is unavailable, you can temporarily skip this step.

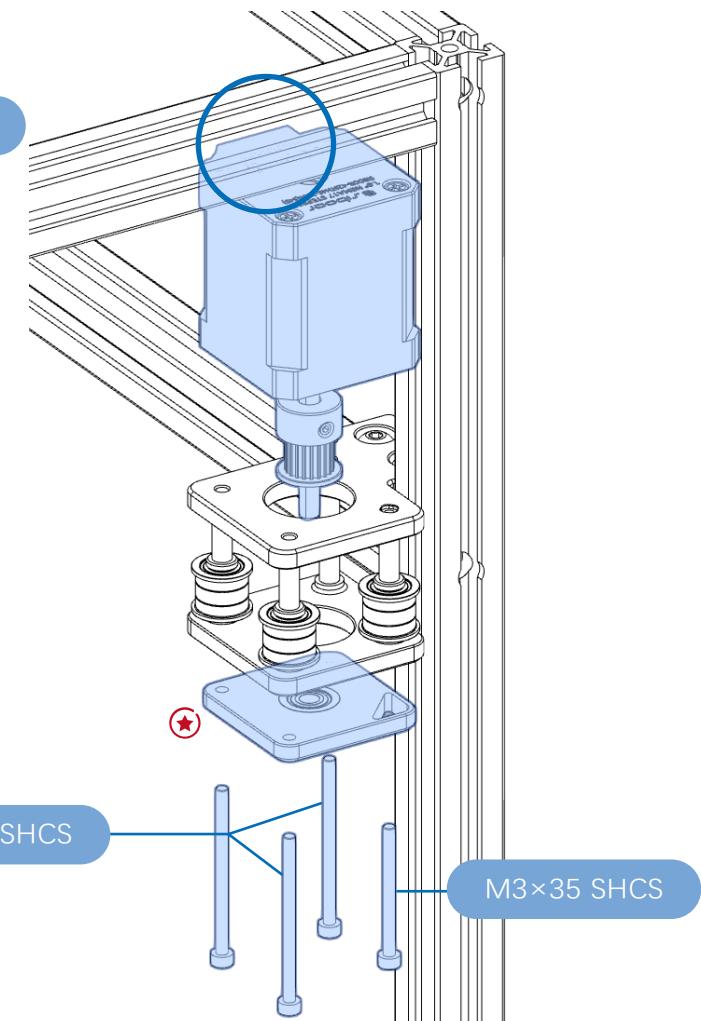
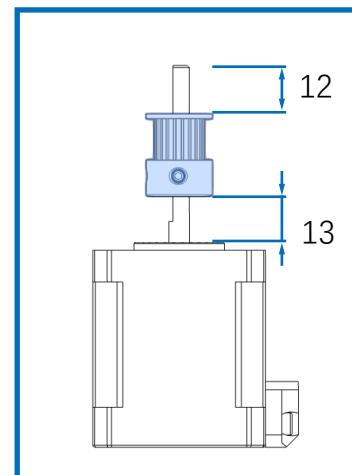
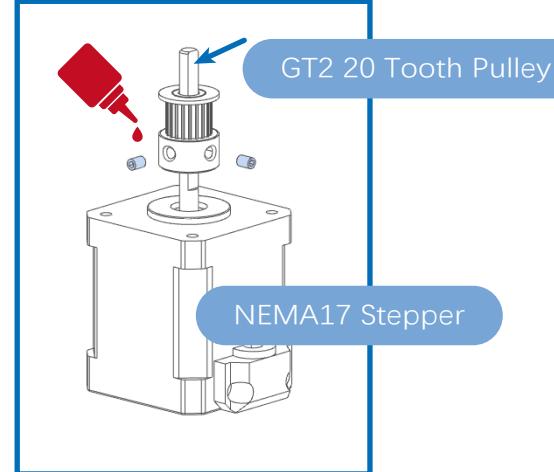
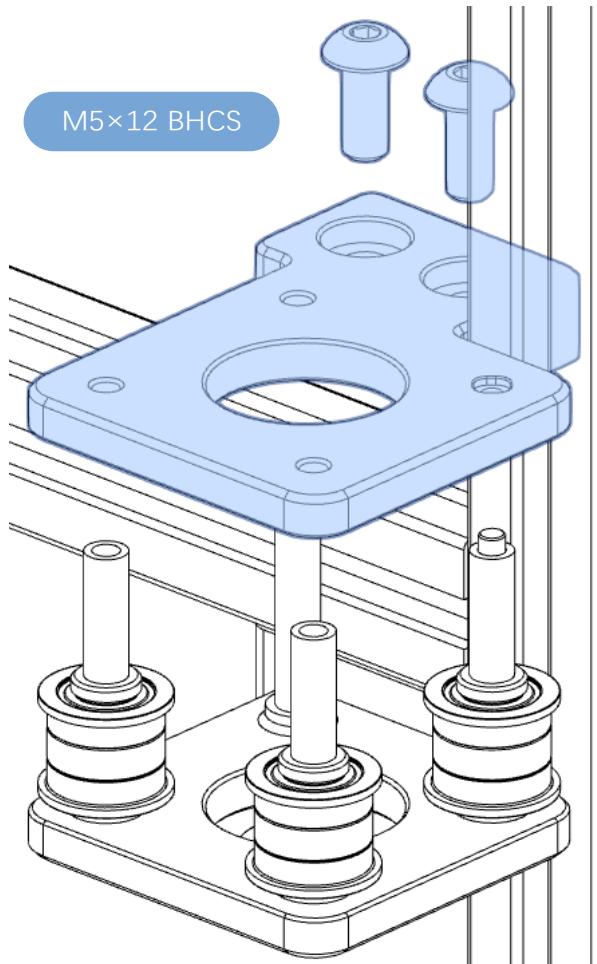


A bearing cap with a triangular notch is used in this instance.

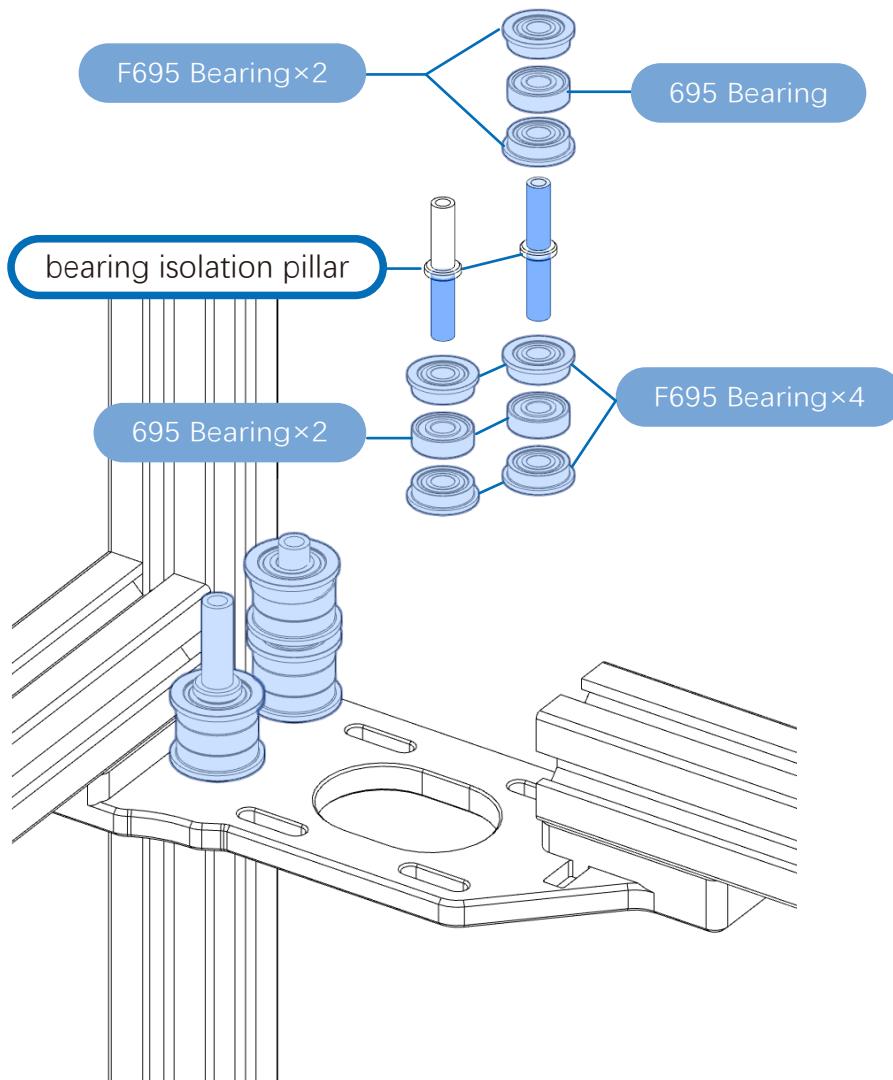
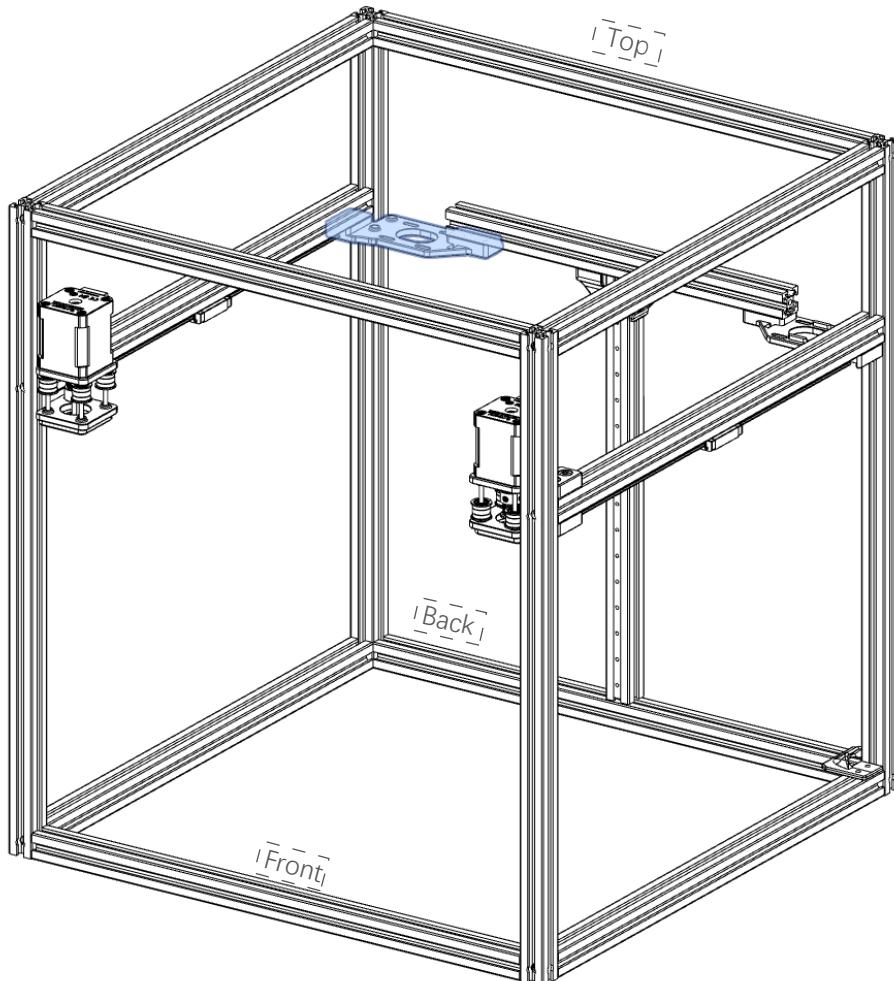


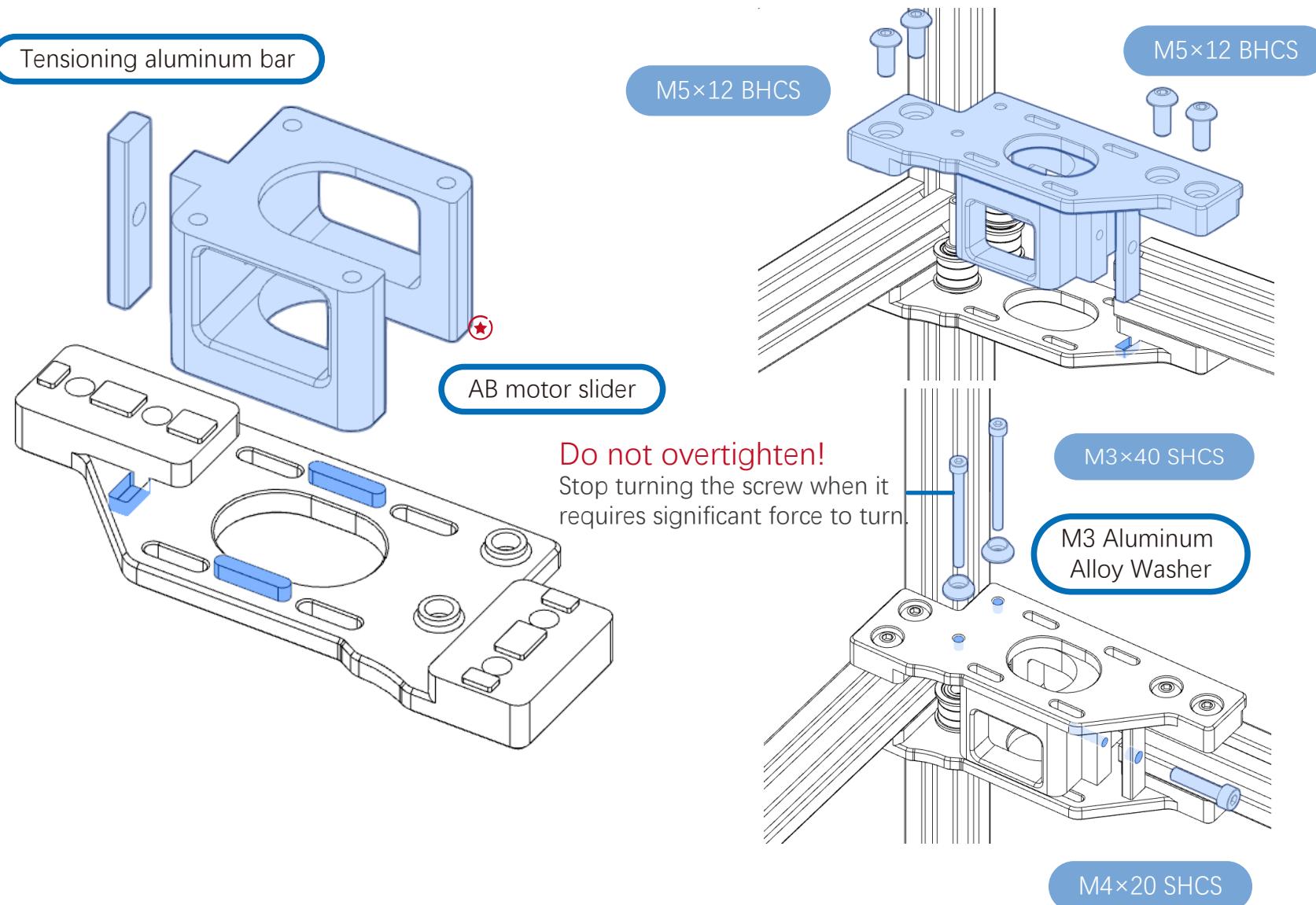
Direction

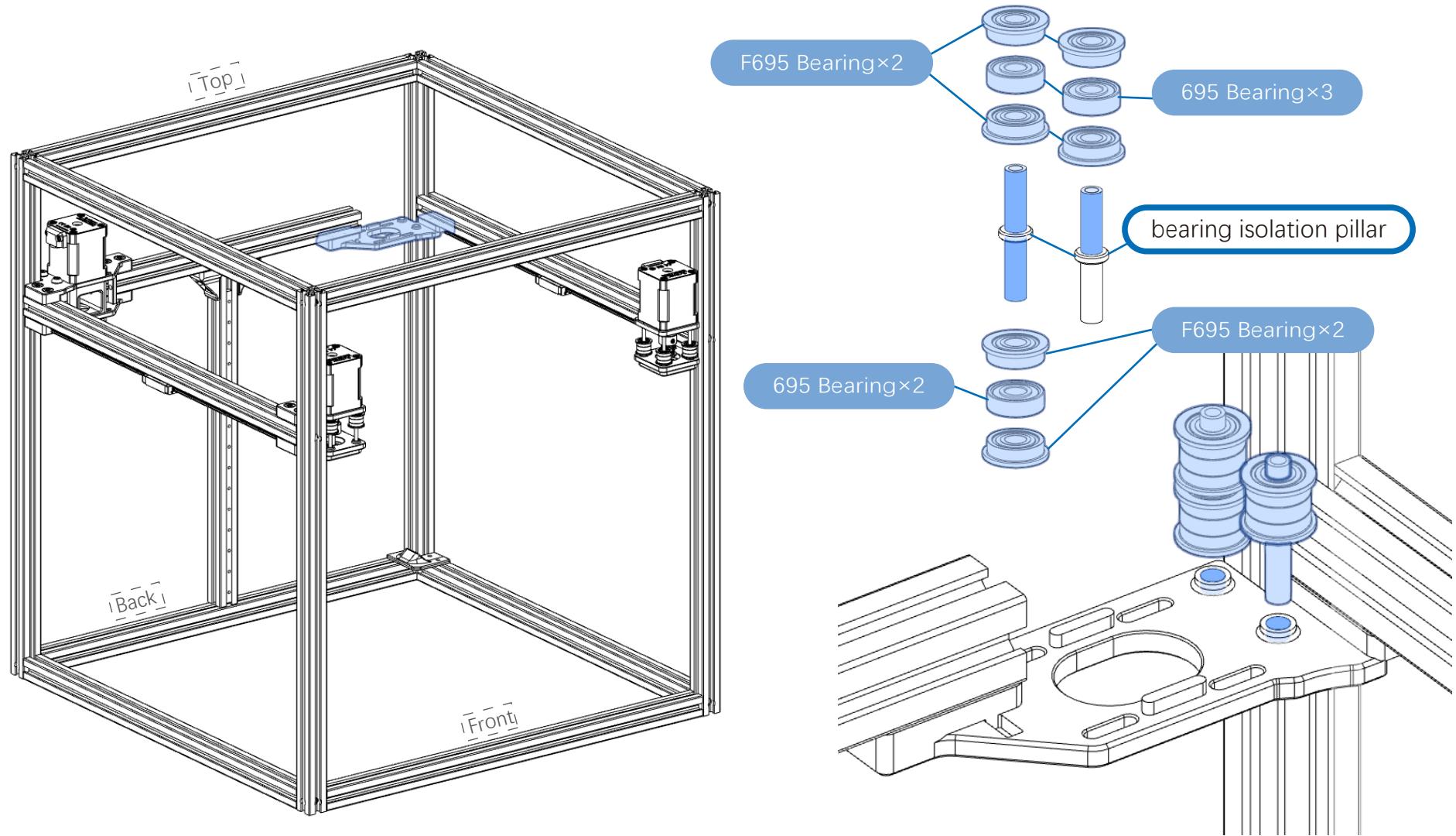
The set screws should align with the notch on the motor shaft.

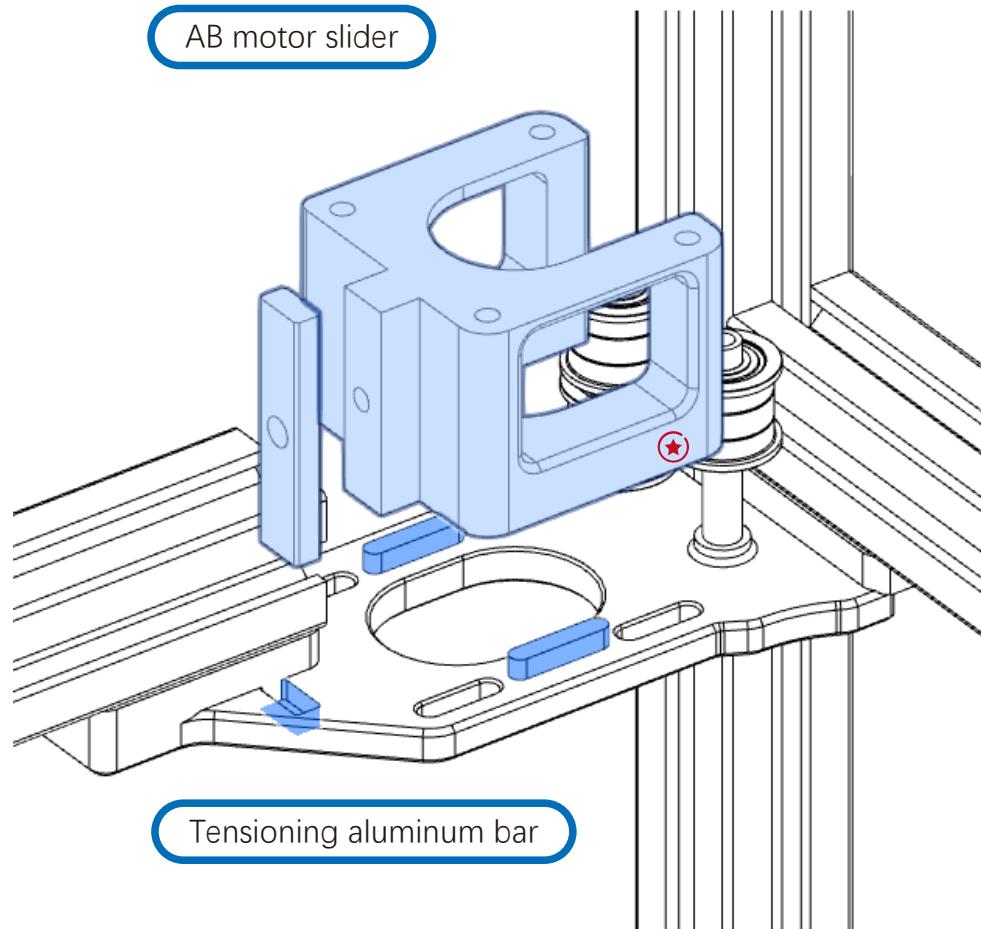
**Thread locker**

Consider adding threadlocker for the specific screw (e.g., the Voron motor mount screw). This screw often loosens and causes tension issues. Note that some threadlockers might lock too tightly for future adjustments. If thread sealant is unavailable, you can temporarily skip this step.



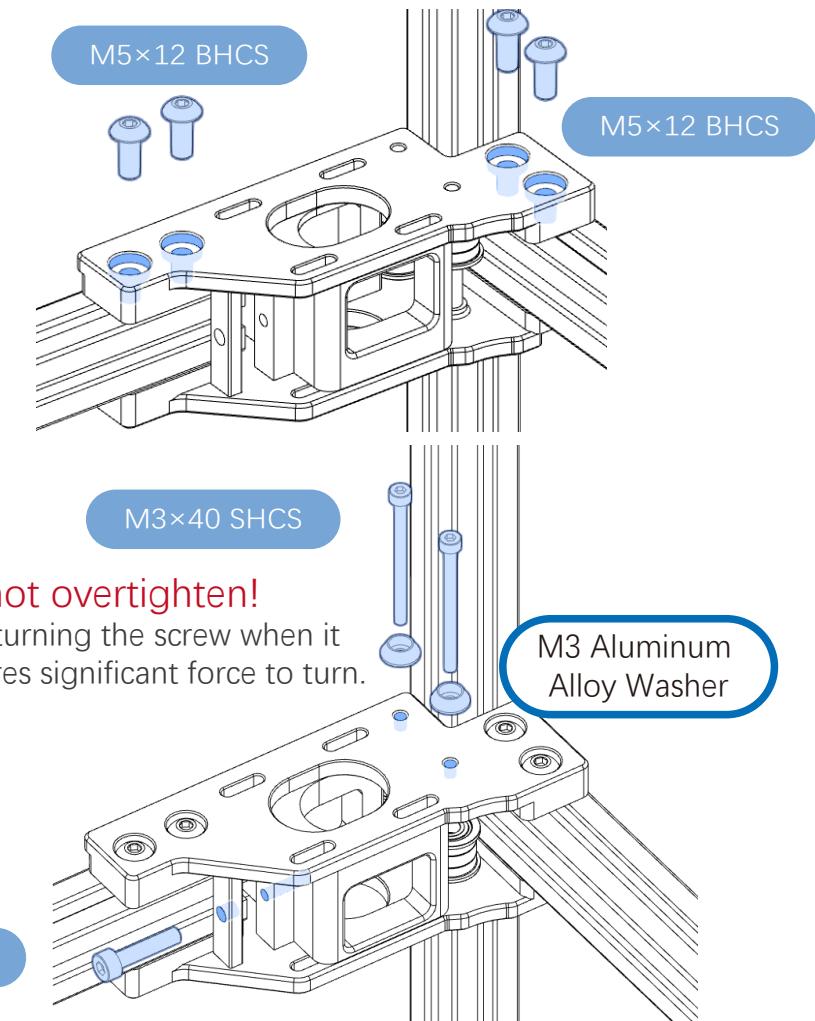




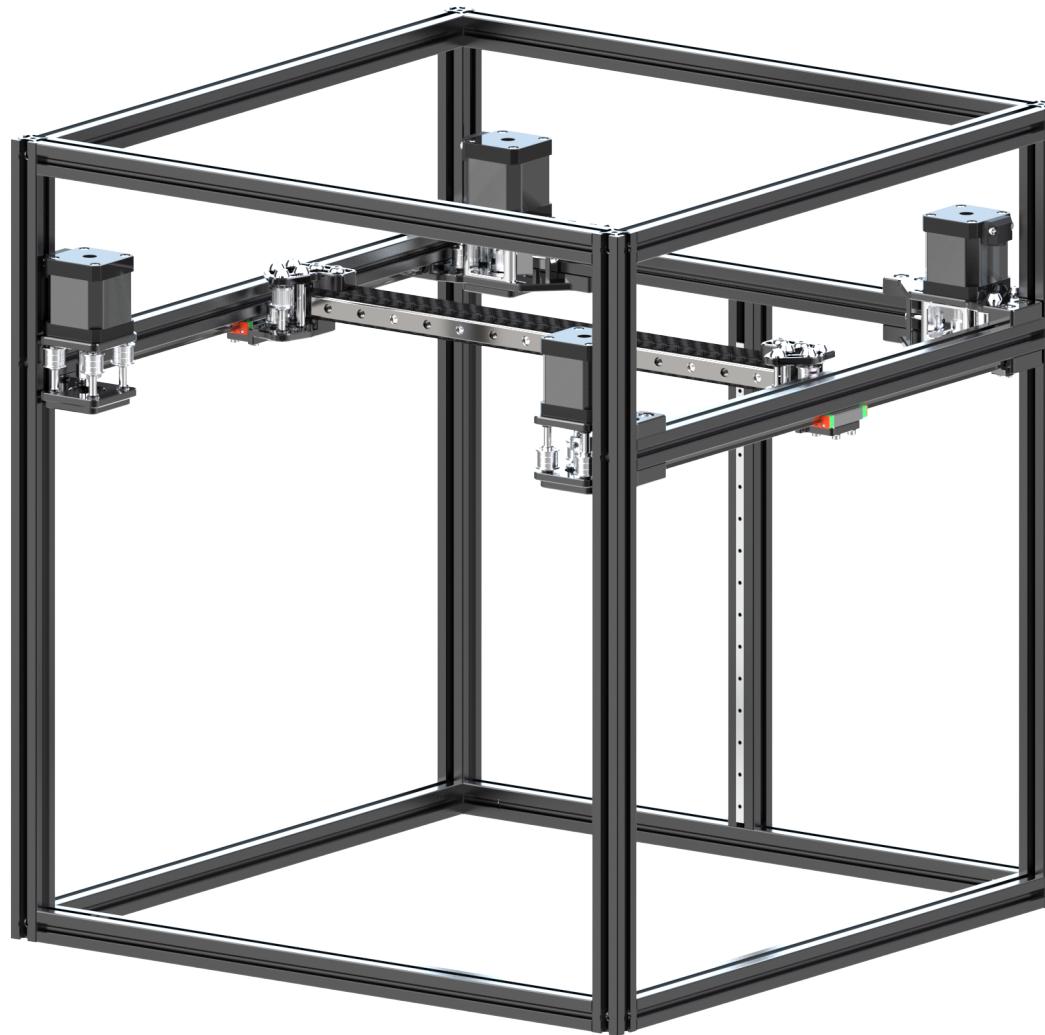


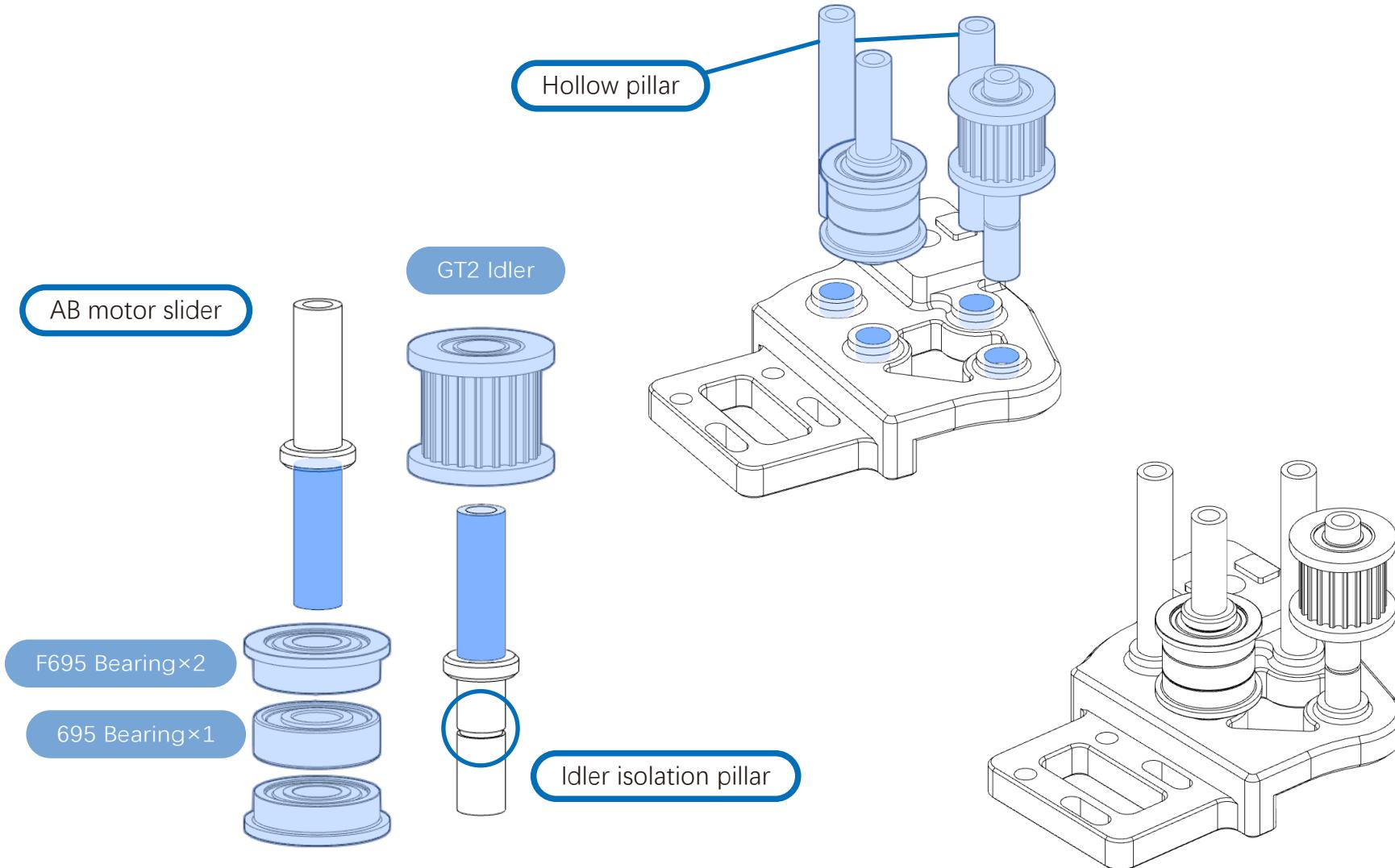
M4×20 SHCS

Do not overtighten!
Stop turning the screw when it requires significant force to turn.



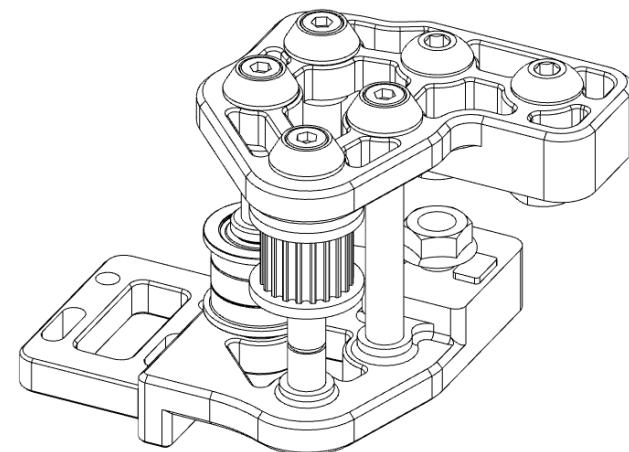
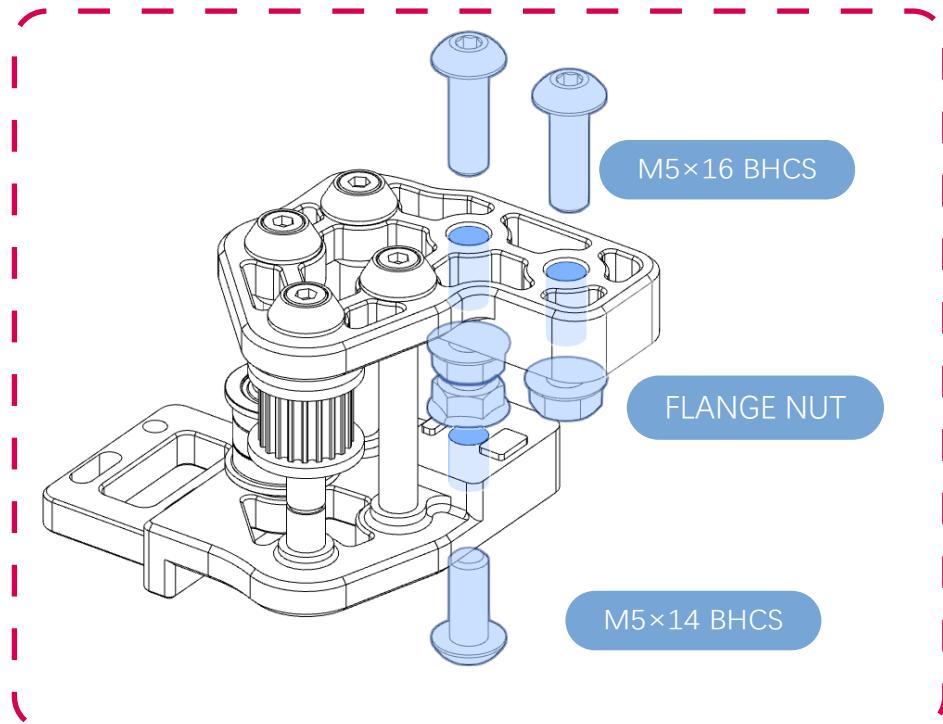
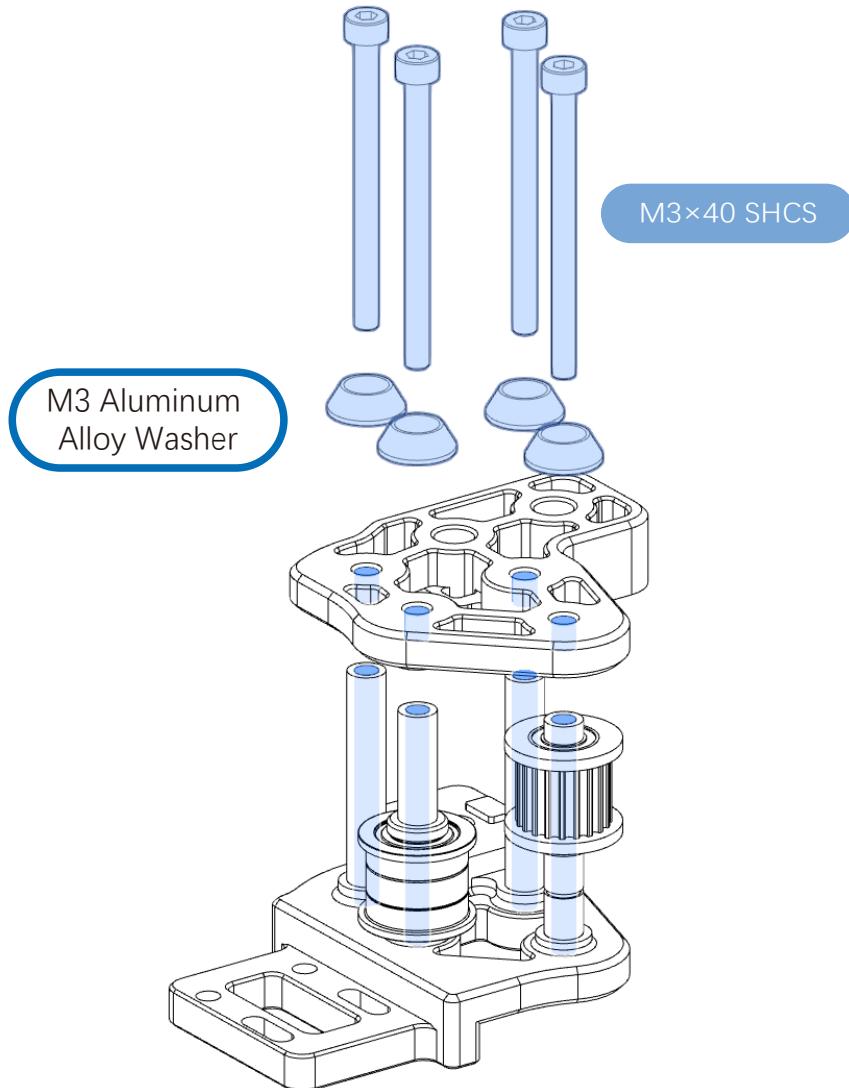
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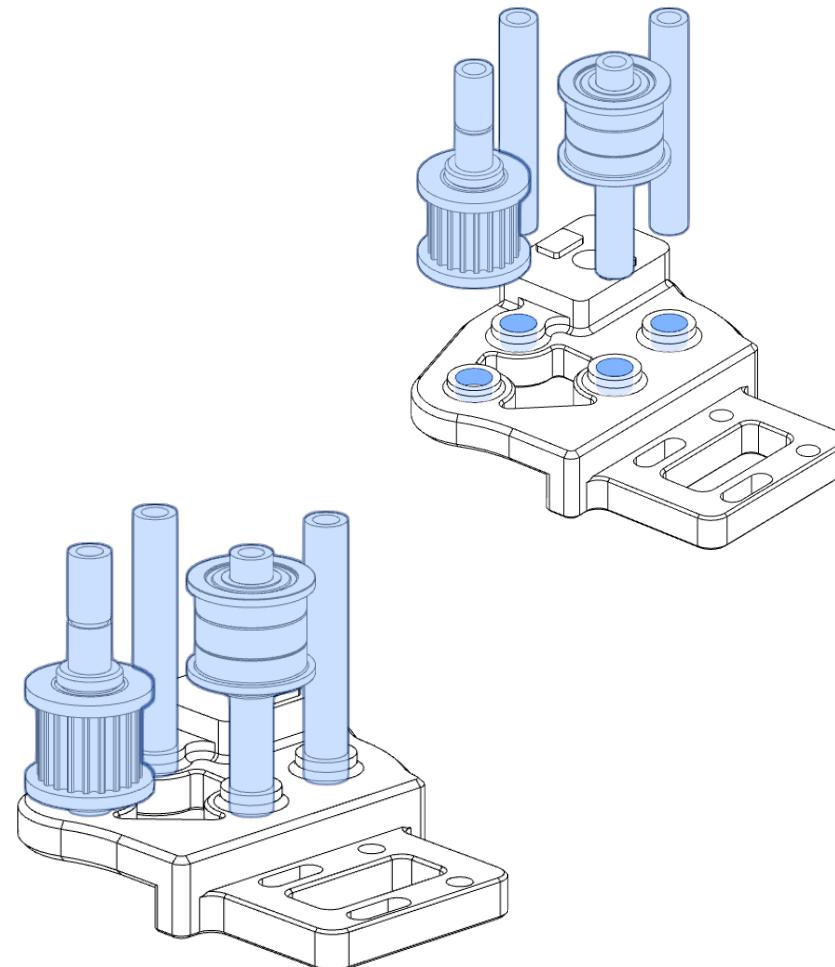
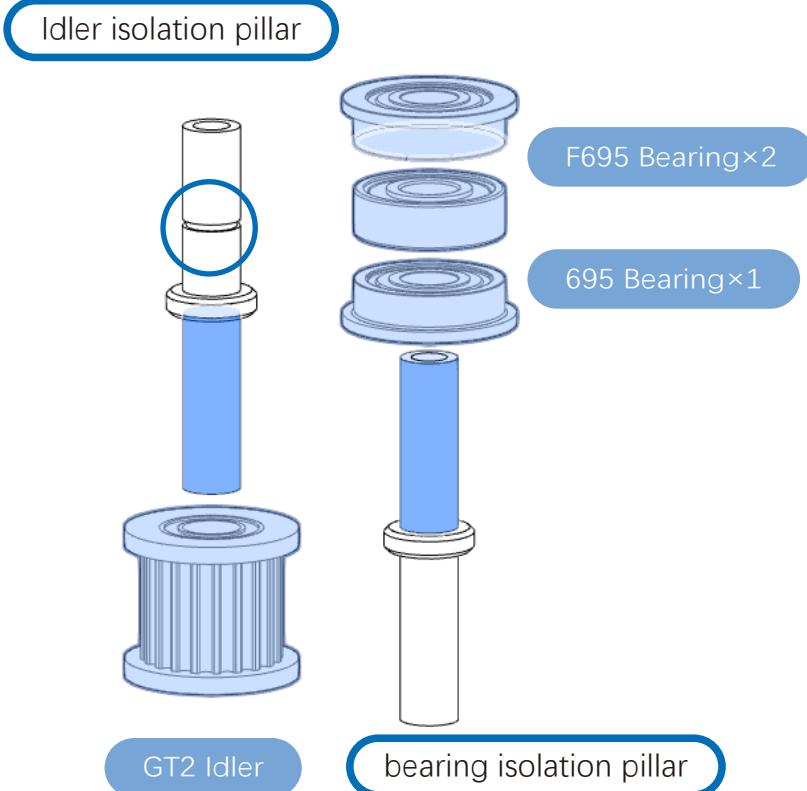




Don't tighten the screws too much

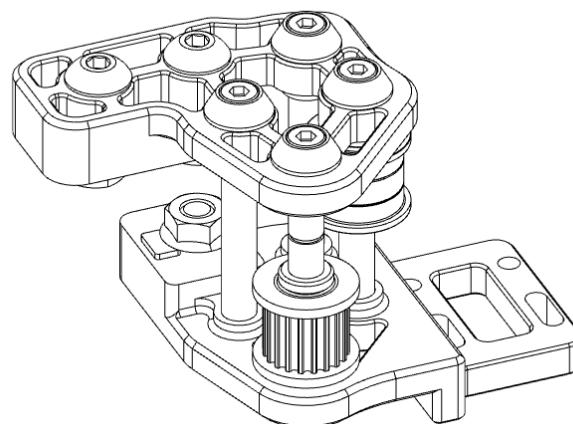
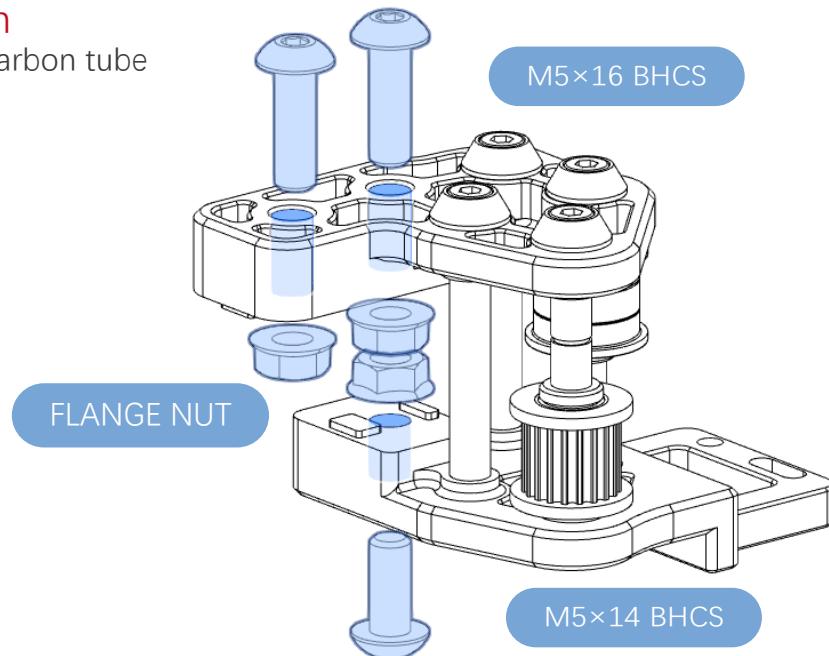
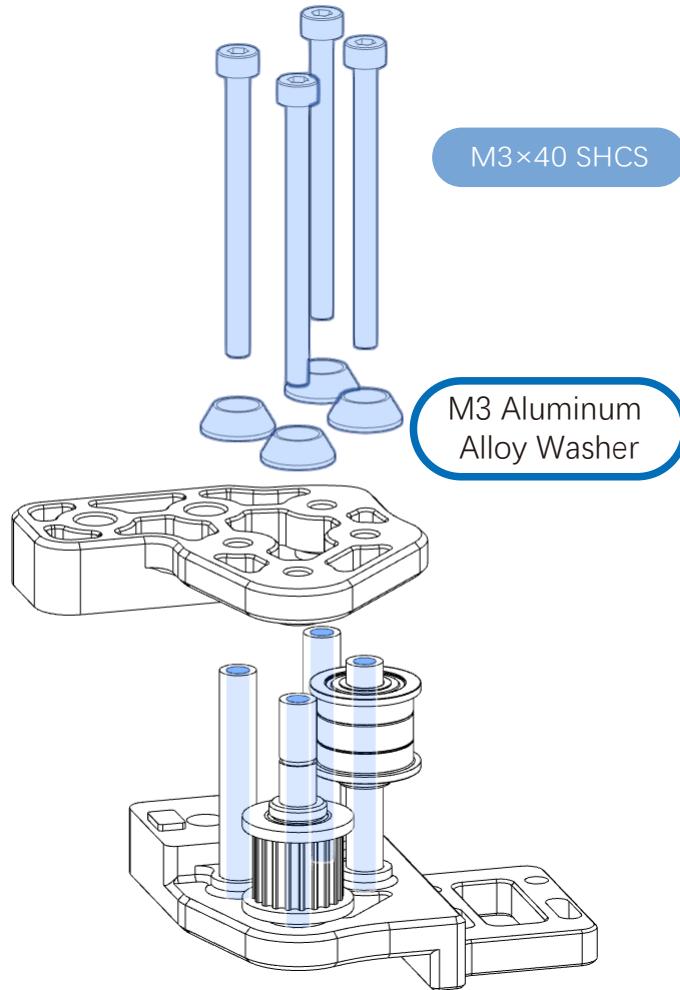
the next step needs to be to install the X carbon tube

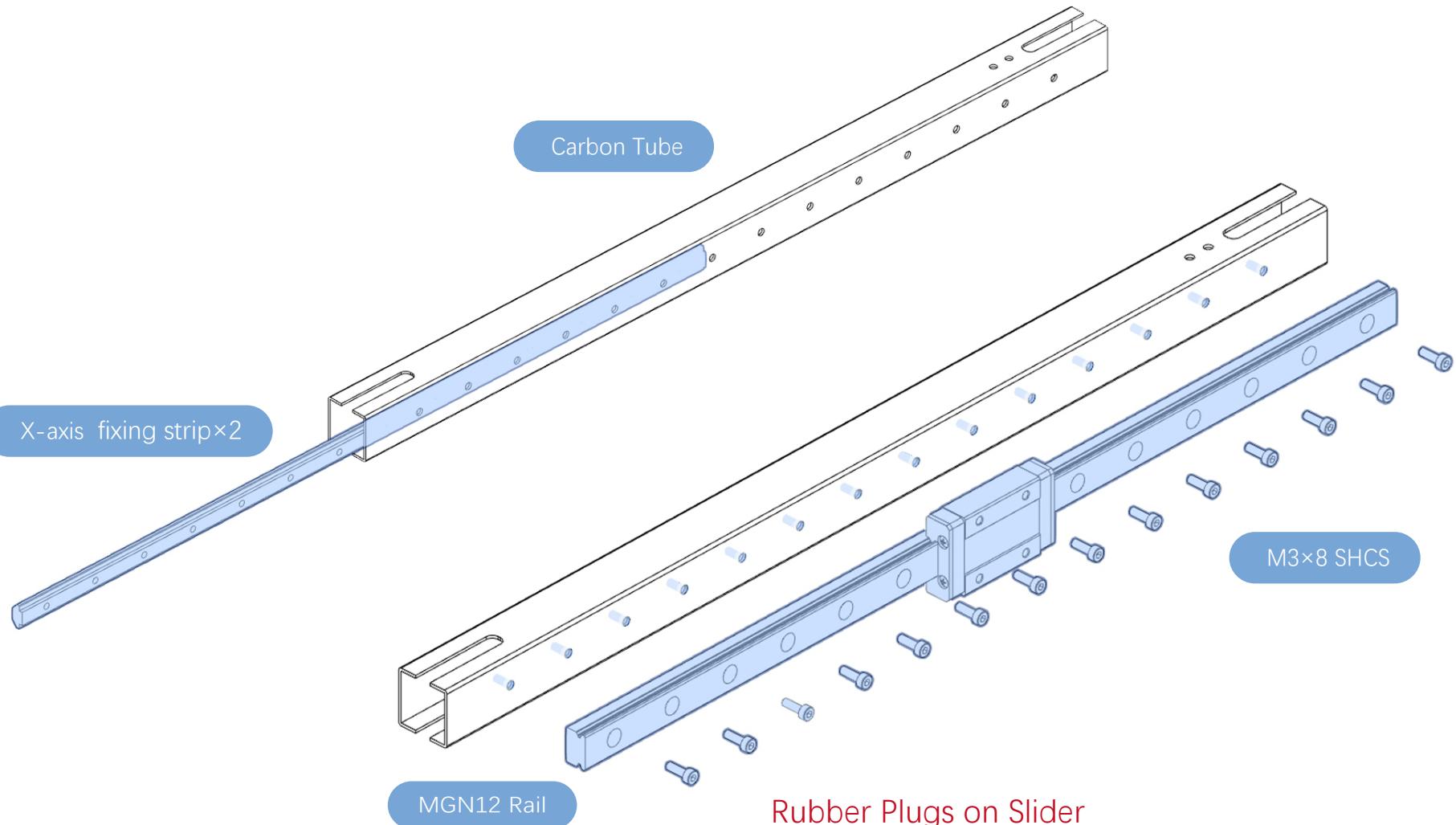




Don't tighten the screws too much

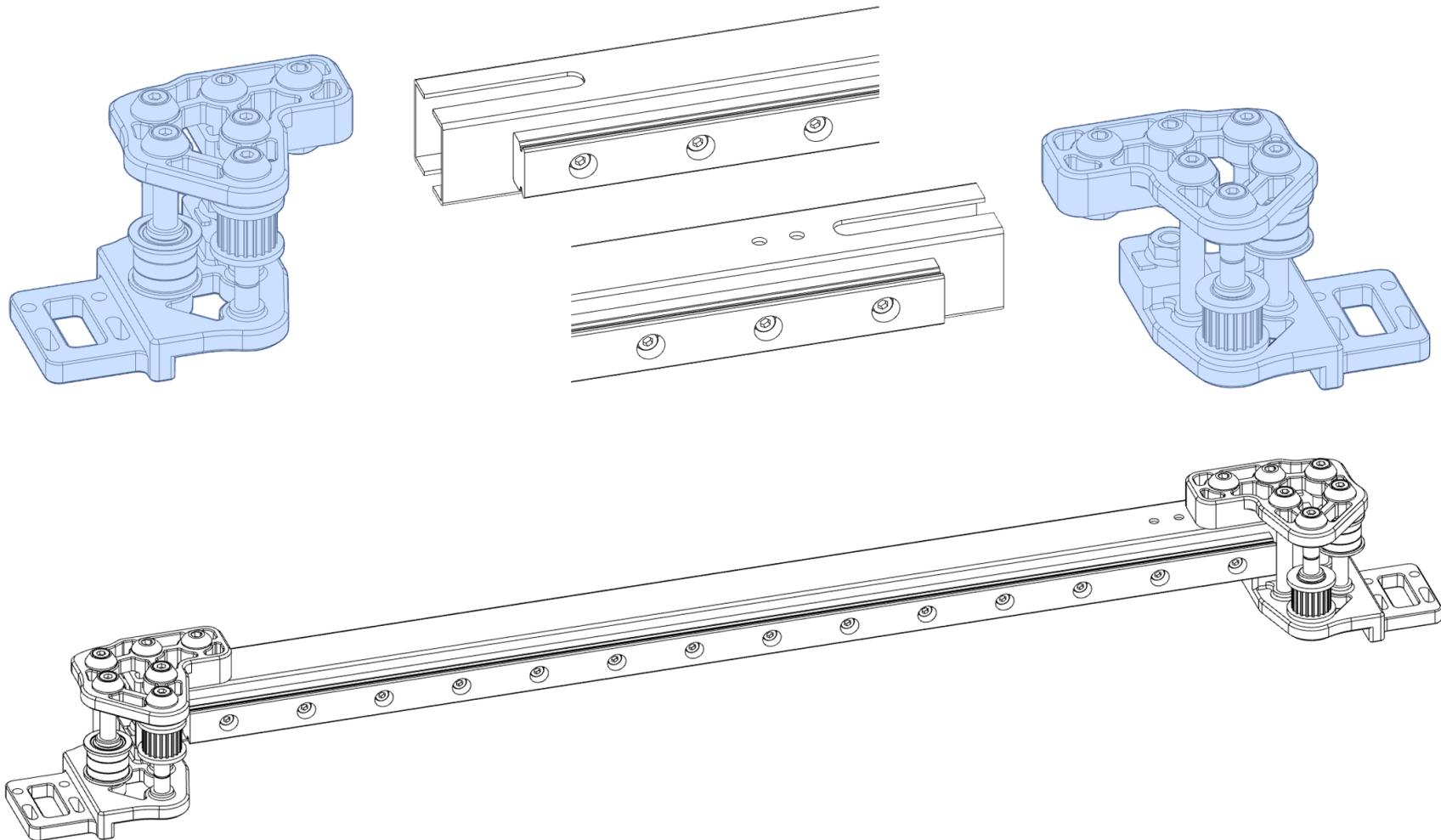
the next step needs to be to install the X carbon tube

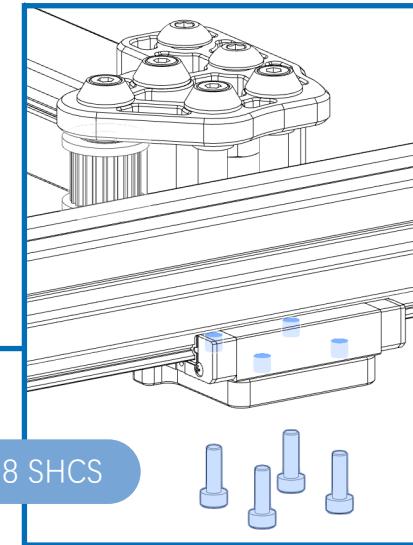
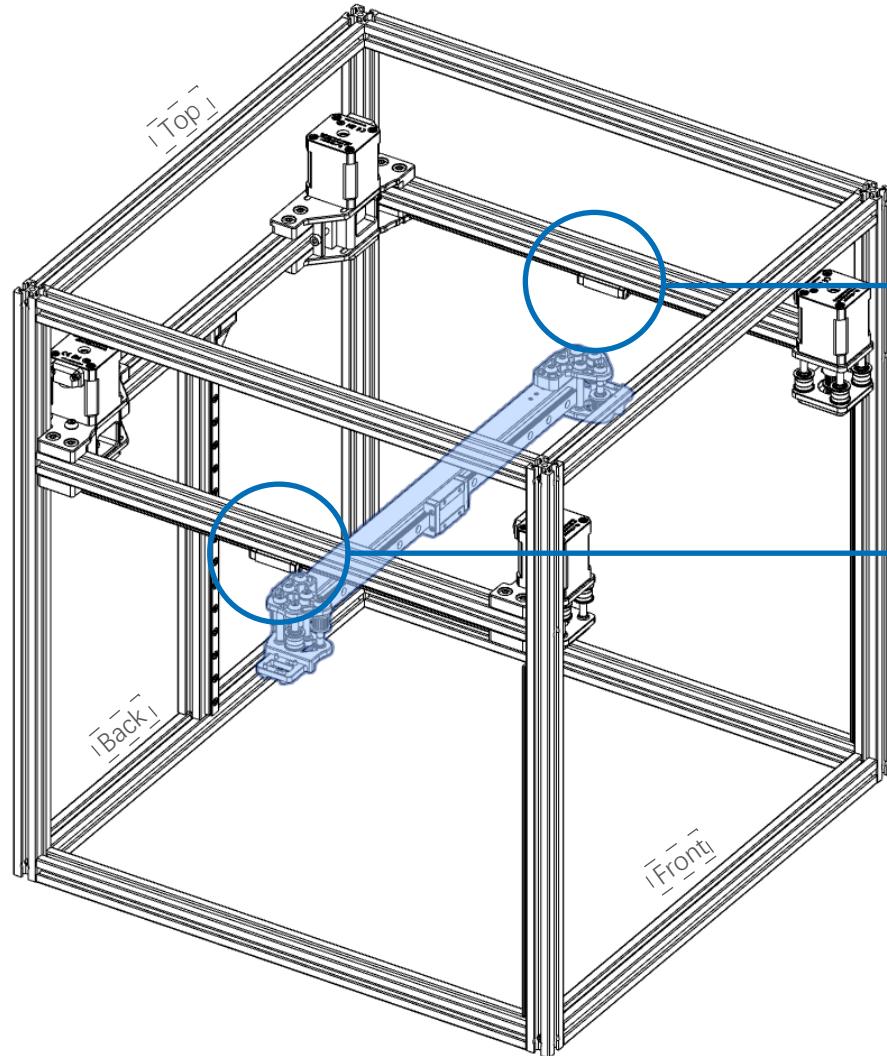




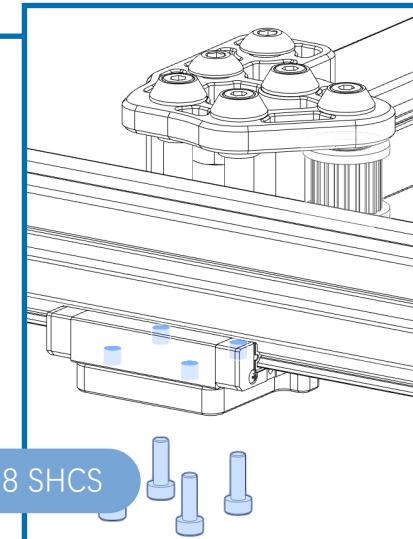
Rubber Plugs on Slider

You may notice rubber plugs on both sides of the slider. These effectively prevent the slider from accidentally dislodging, so do not attempt to remove them before installing the screws.





M3×8 SHCS



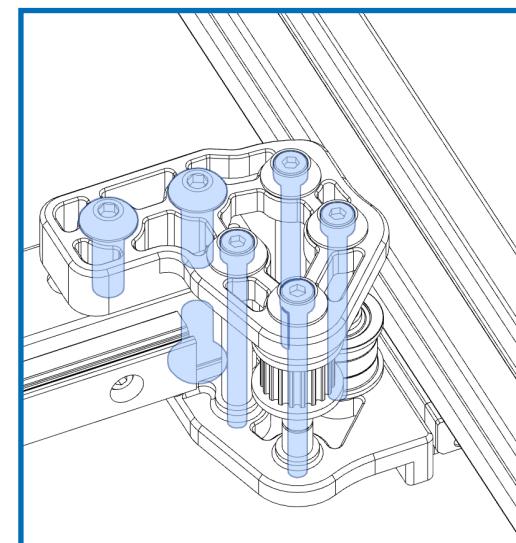
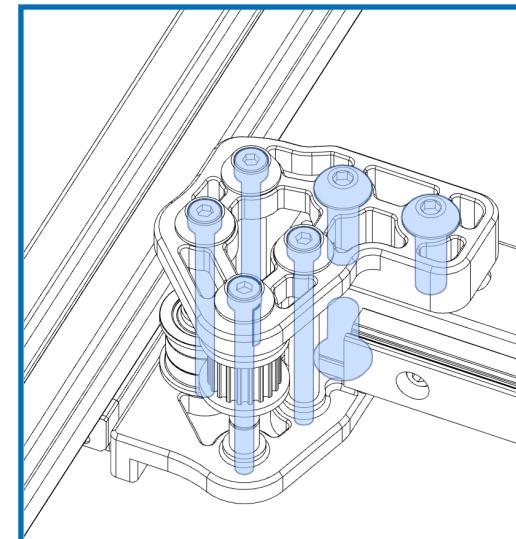
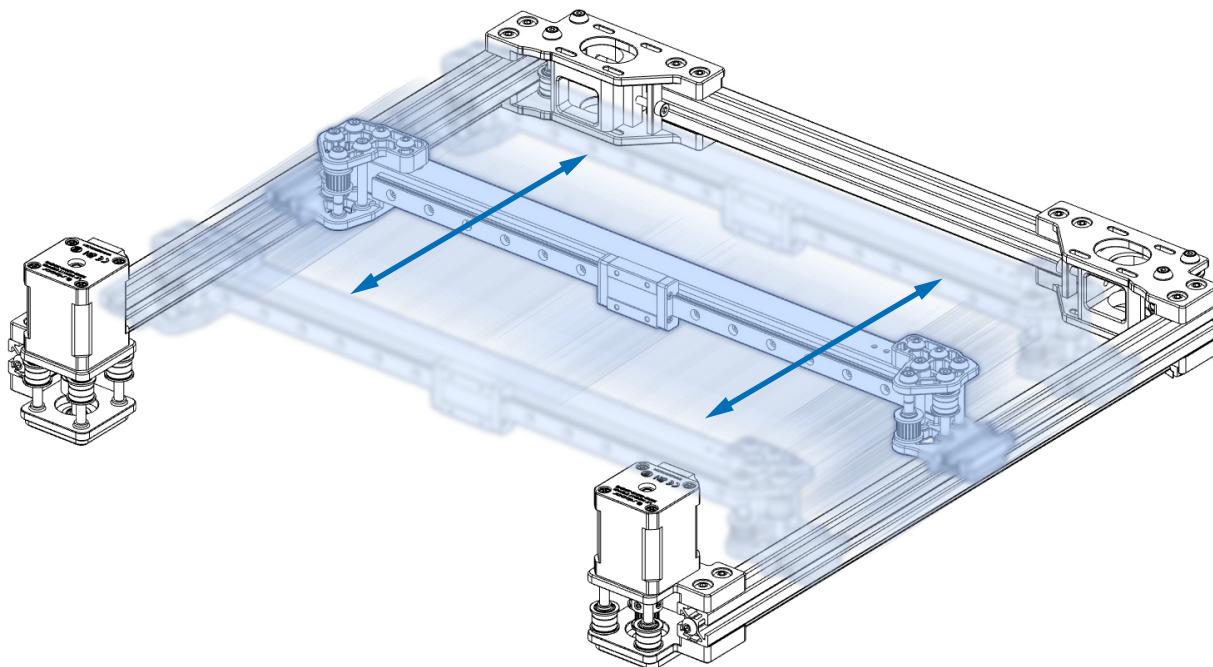
M3×8 SHCS

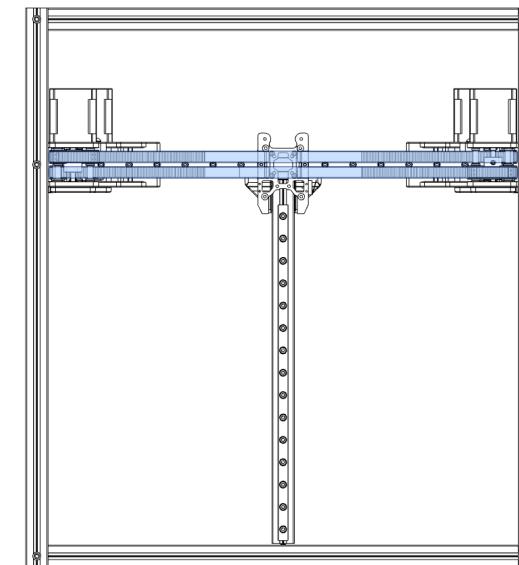
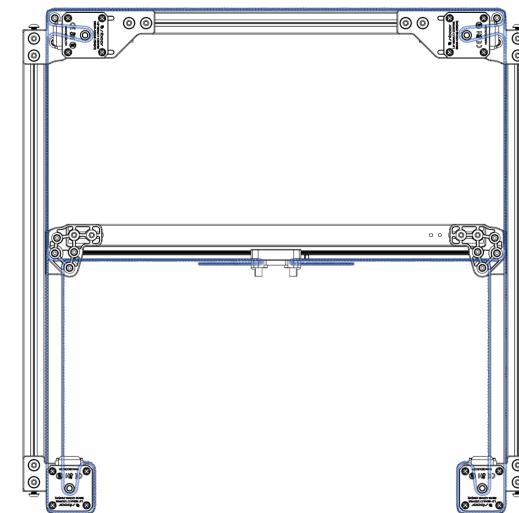
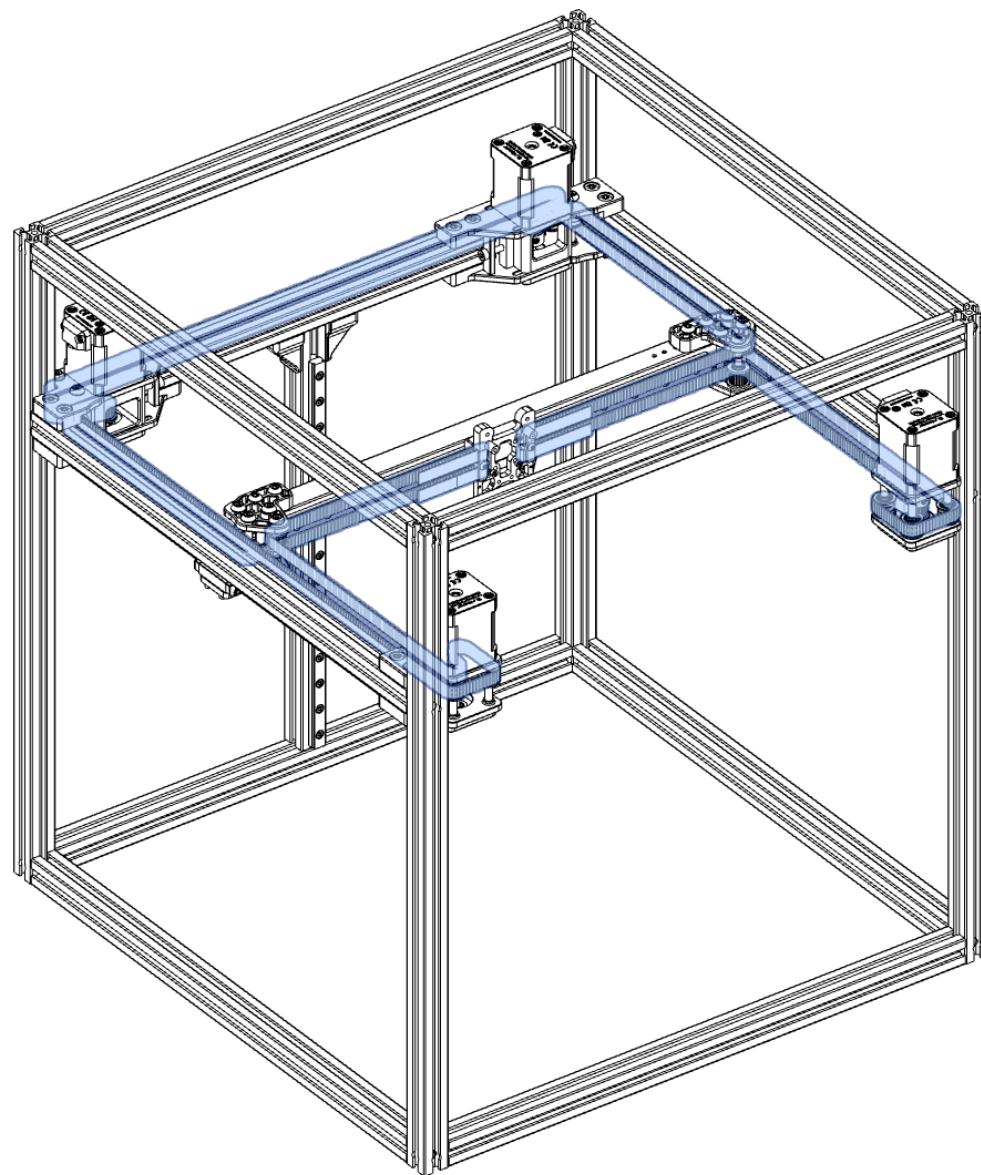
Adjusting the X-Axis Joints

Slide the X-axis part quickly along the Y-axis. Since the screws on both sides of the X-axis joints are not fully tightened, the joints will automatically adjust their positions on the carbon tubes during the sliding process.

Once you feel the movement is very smooth and without any resistance, you can fully tighten the screws on both sides of the X-axis joints.

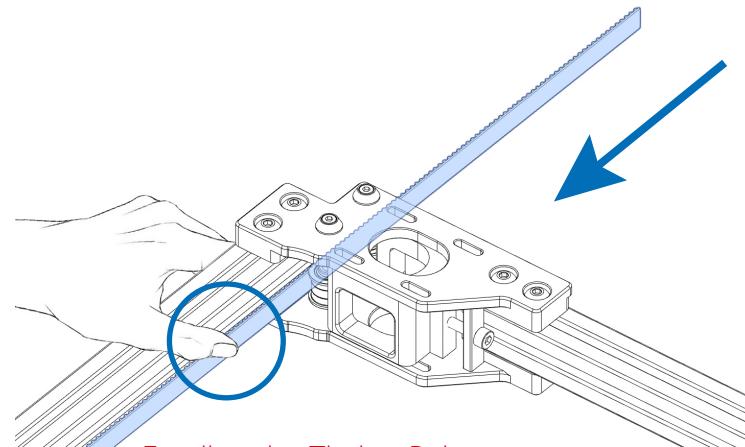
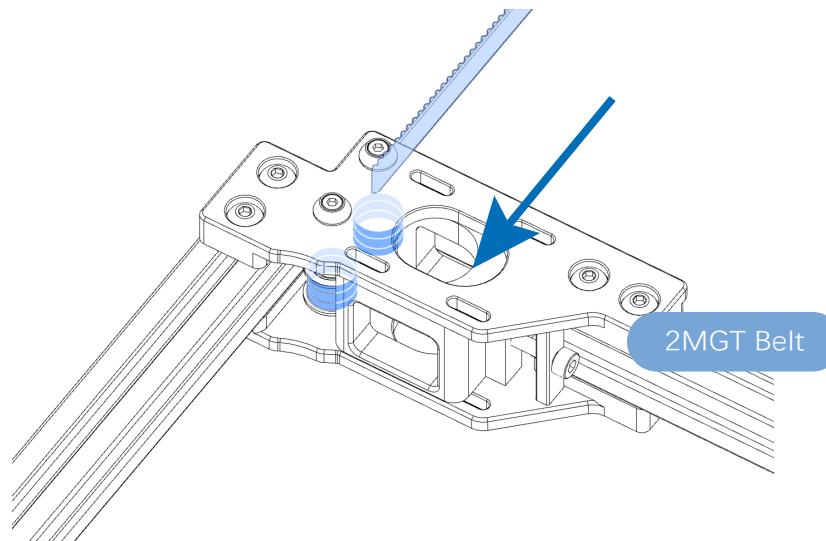
Don't forget to tighten the M5×12 BHCS screws at the bottom; otherwise, they may become loose and fall off during high-speed machine operation.





Instruction

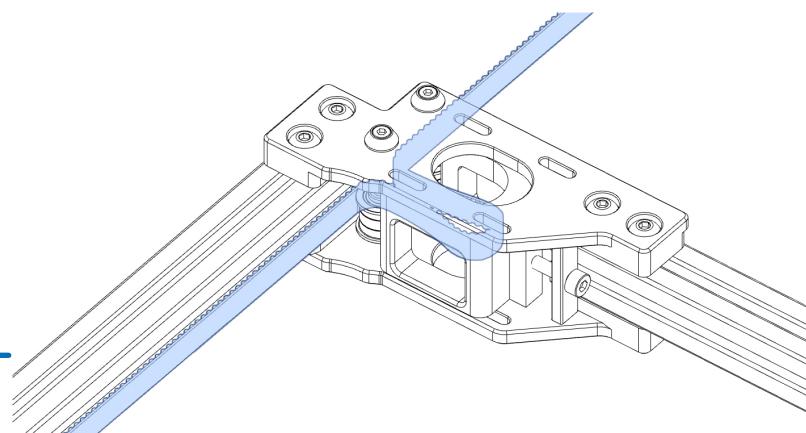
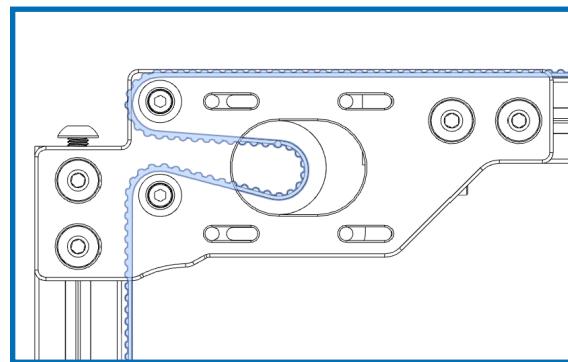
Cut the timing belt in the kit into two equal parts.

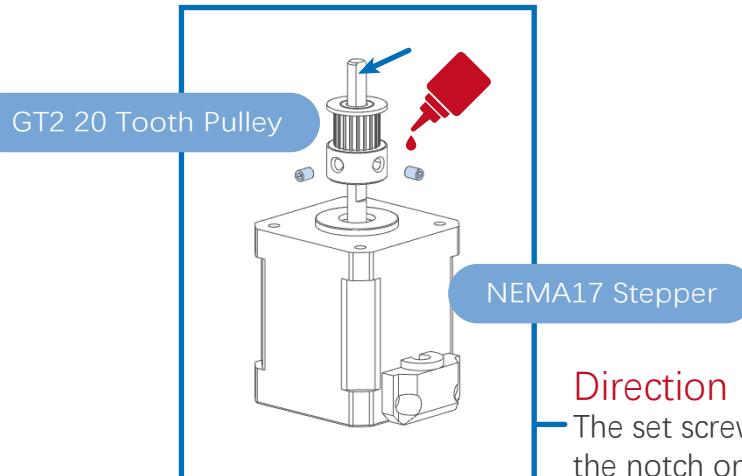
**Feeding the Timing Belt**

Hold the timing belt at the exit point and continue feeding it until the belt is forced into place between the two sets of bearings under pressure.

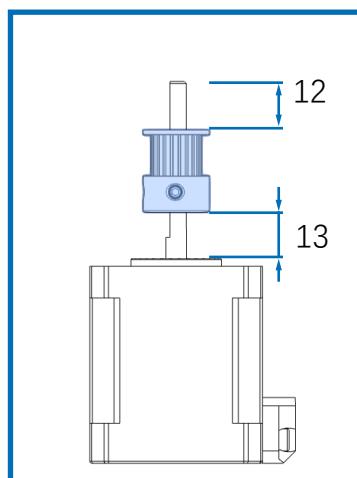
Temporarily Hiding the Frame Extrusion

To provide a clear demonstration of the timing belt installation steps, we will temporarily hide the frame extrusion in the subsequent sections.





Direction
The set screws should align with the notch on the motor shaft.



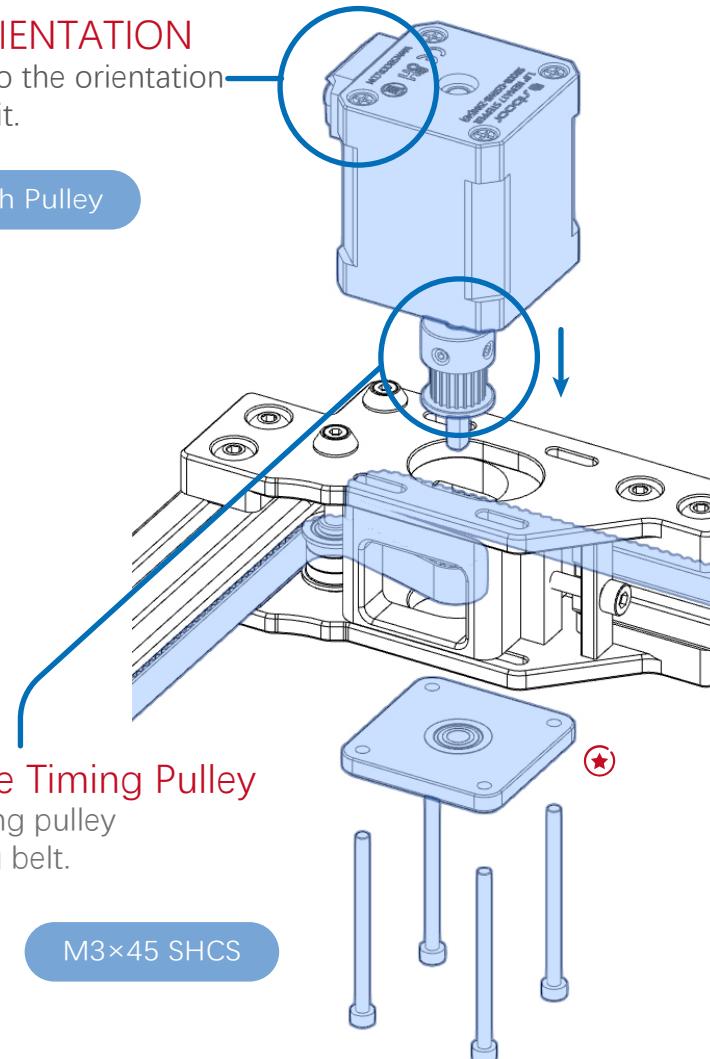
Thread locker

Consider adding threadlocker for the specific screw (e.g., the Voron motor mount screw). This screw often loosens and causes tension issues. Note that some threadlockers might lock too tightly for future adjustments. If thread sealant is unavailable, you can temporarily skip this step.

MOTOR ORIENTATION

Pay attention to the orientation of the cable exit.

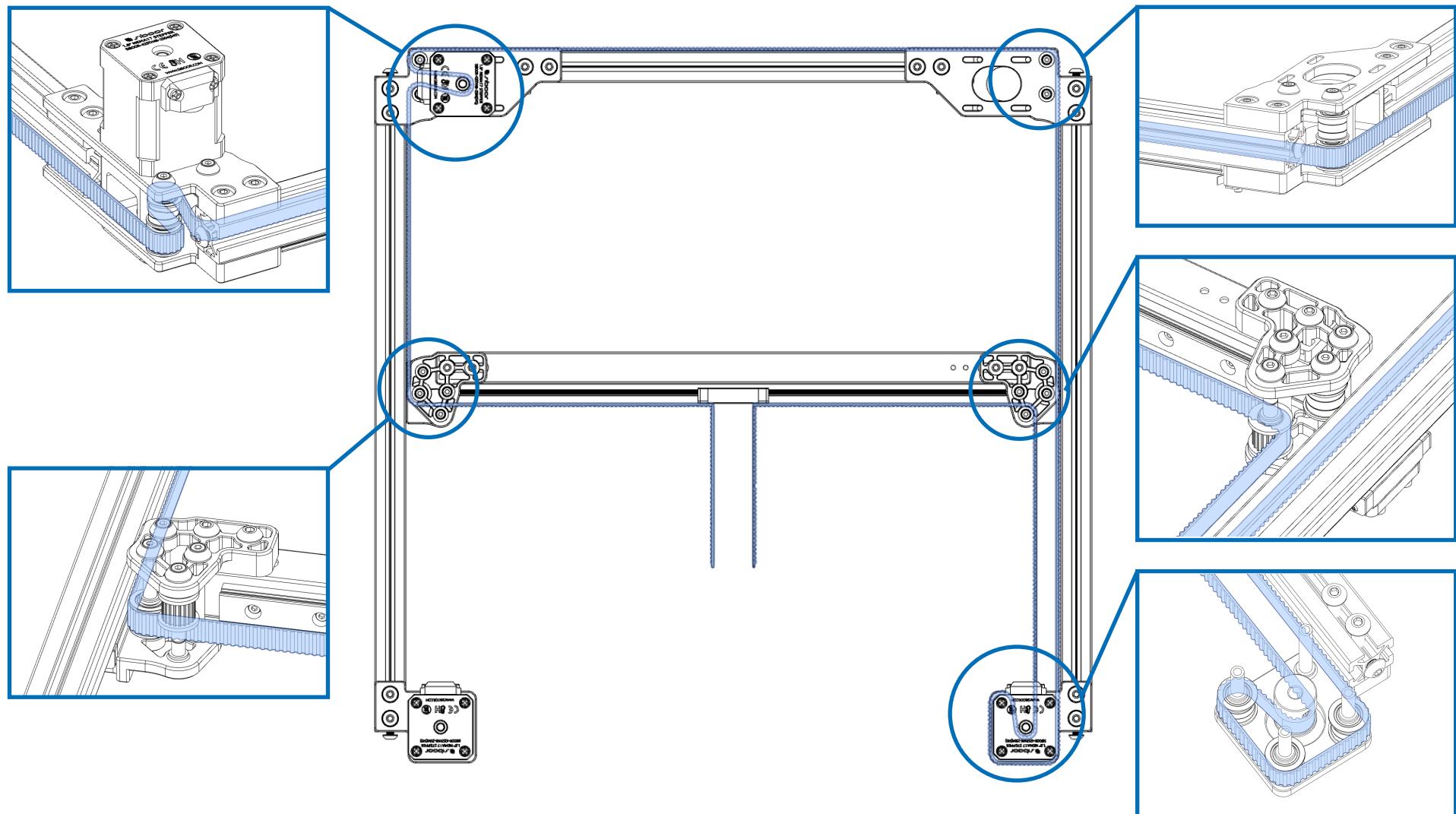
GT2 20 Tooth Pulley



Inserting the Timing Pulley

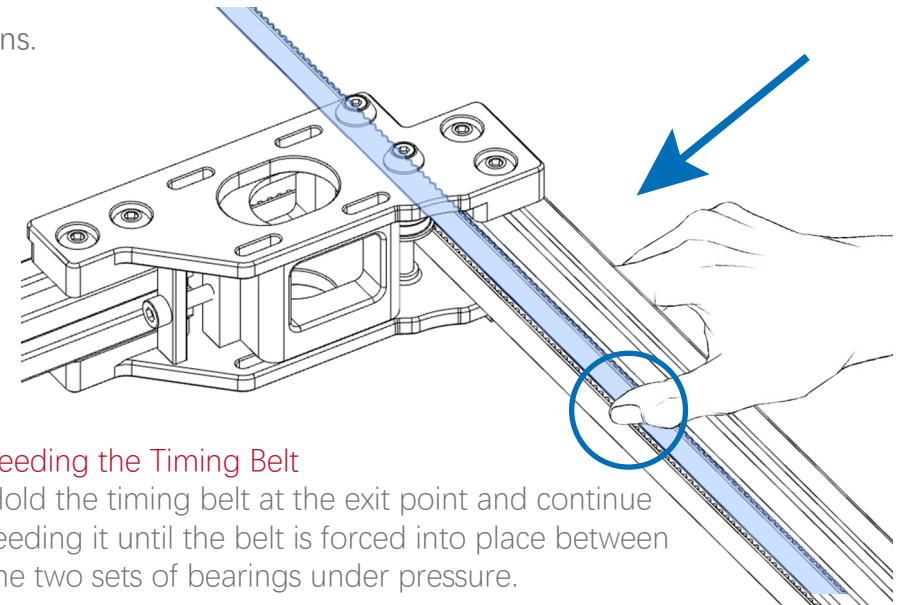
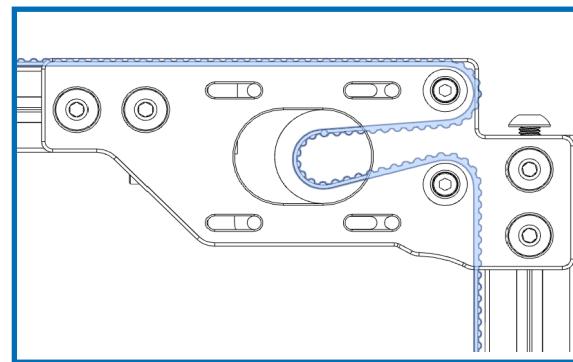
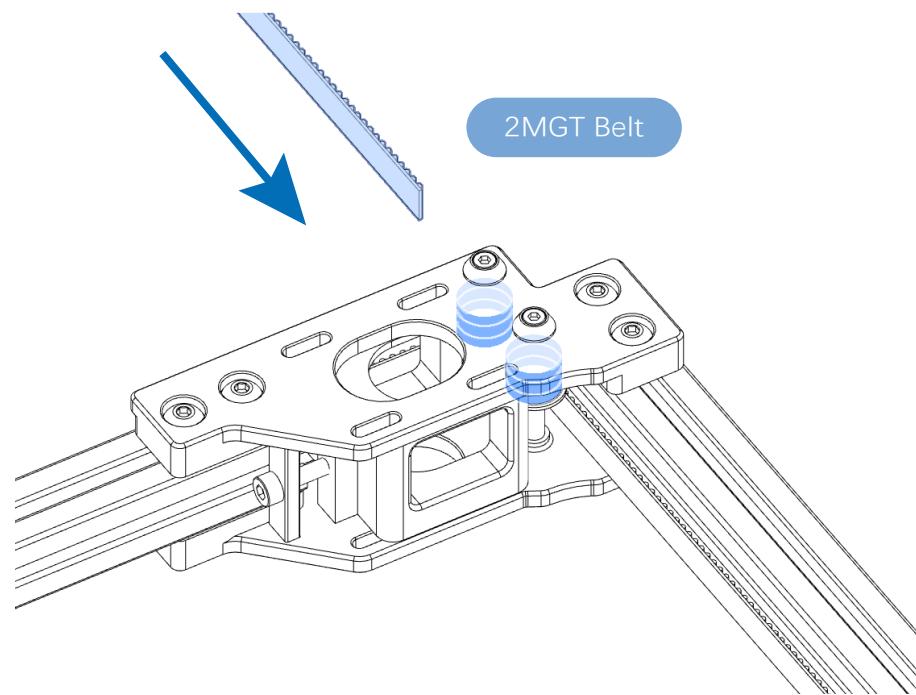
Insert the timing pulley into the timing belt.

M3×45 SHCS



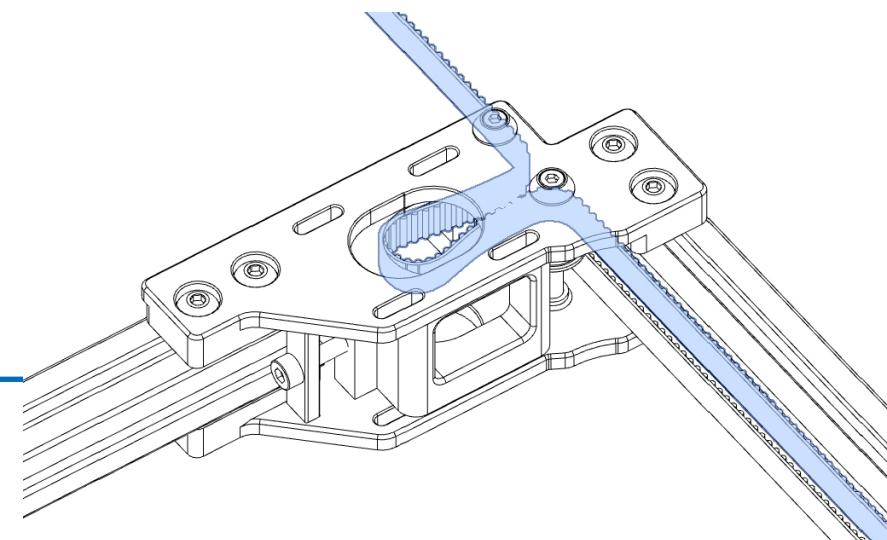
Temporarily Hiding the Frame Extrusion

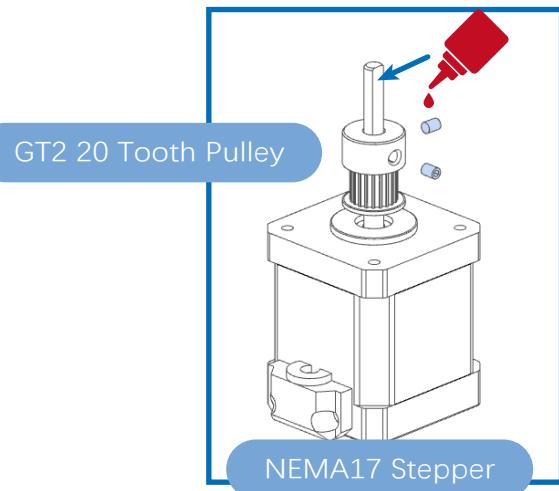
To provide a clear demonstration of the timing belt installation steps, we will temporarily hide the frame extrusion in the subsequent sections.



Feeding the Timing Belt

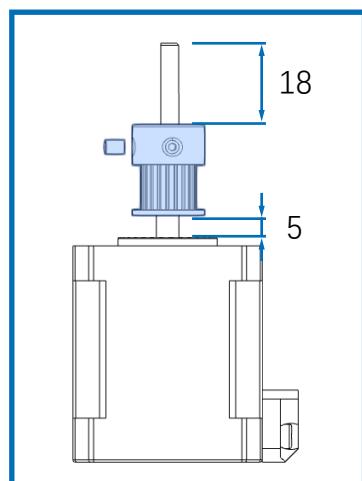
Hold the timing belt at the exit point and continue feeding it until the belt is forced into place between the two sets of bearings under pressure.





Direction

The set screws should align with the notch on the motor shaft.

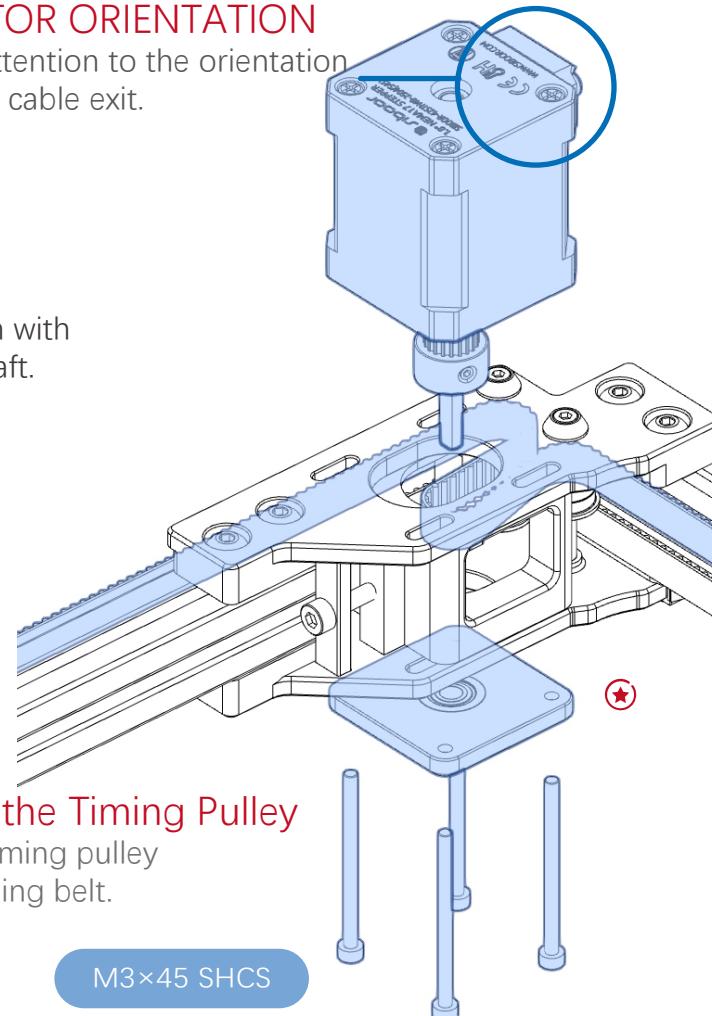


Thread locker

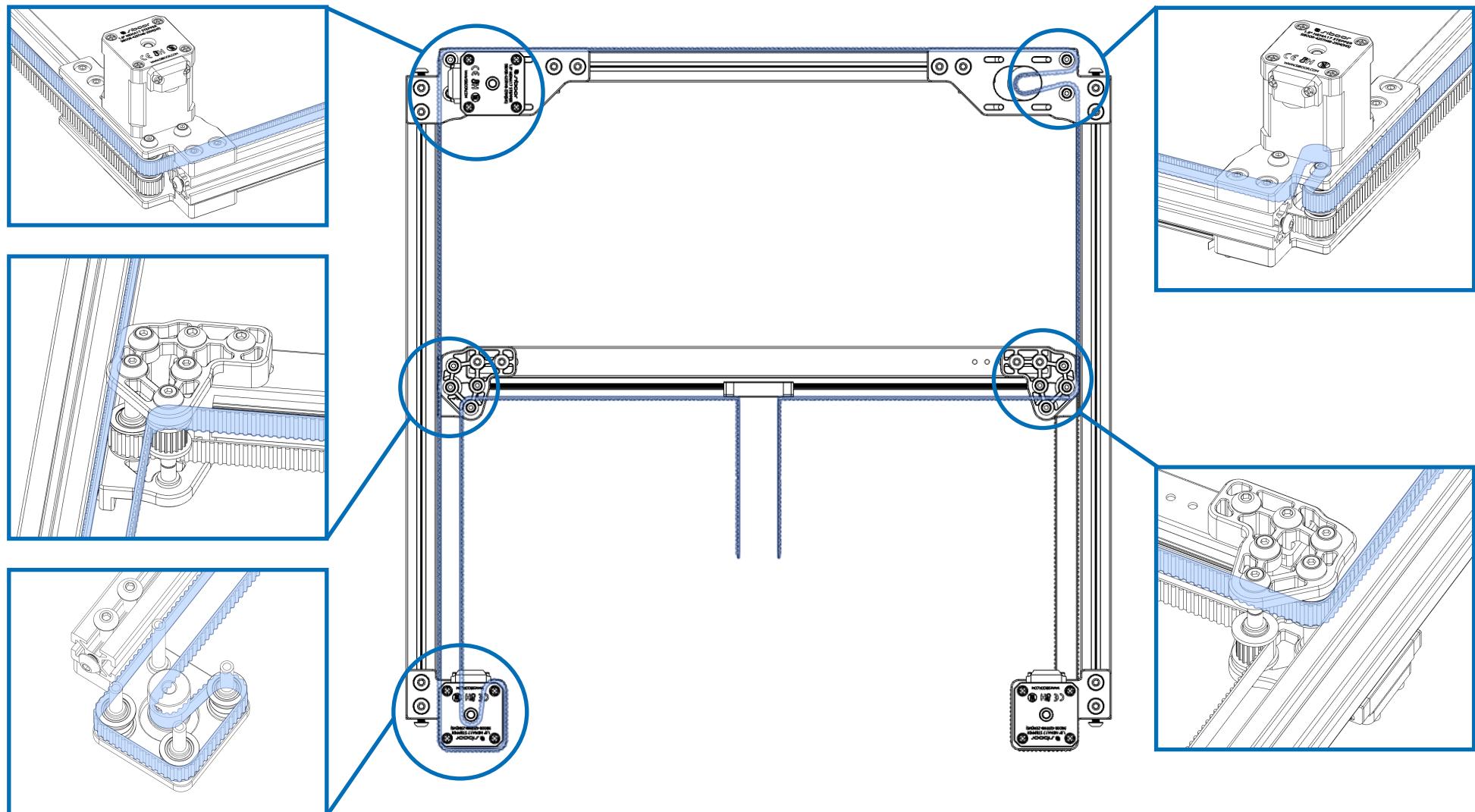
Consider adding threadlocker for the specific screw (e.g., the Voron motor mount screw). This screw often loosens and causes tension issues. Note that some threadlockers might lock too tightly for future adjustments. If thread sealant is unavailable, you can temporarily skip this step.

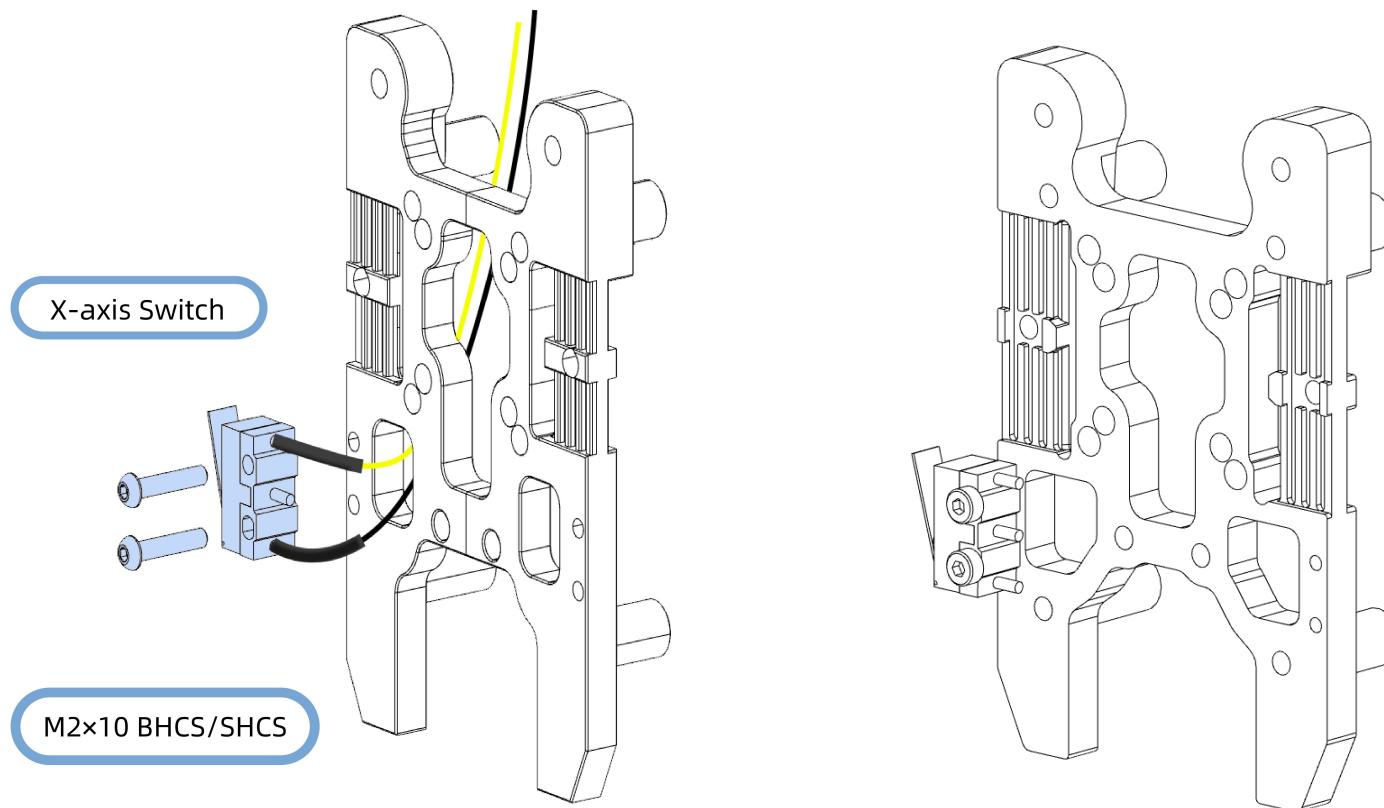
MOTOR ORIENTATION

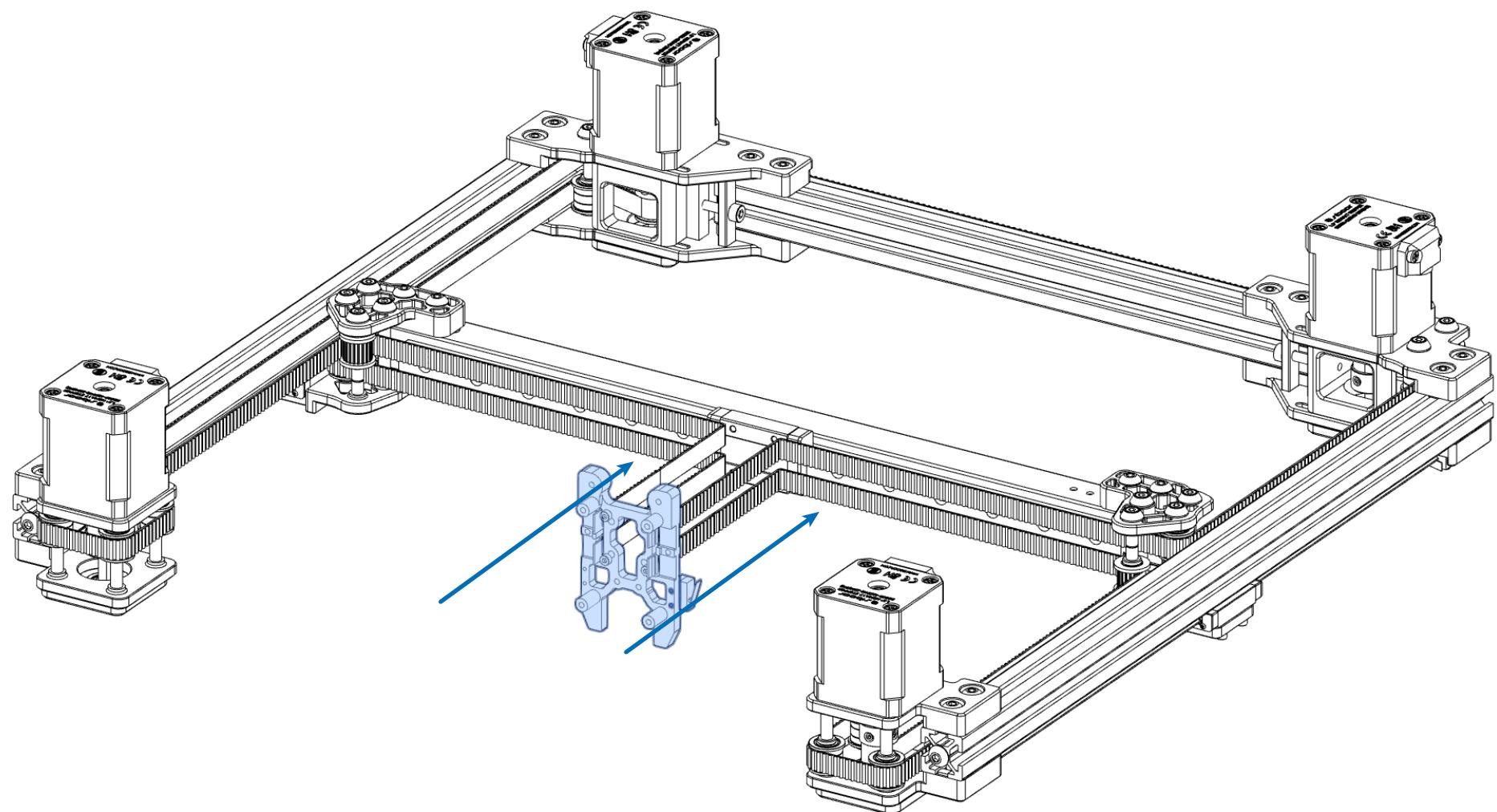
Pay attention to the orientation of the cable exit.



M3×45 SHCS

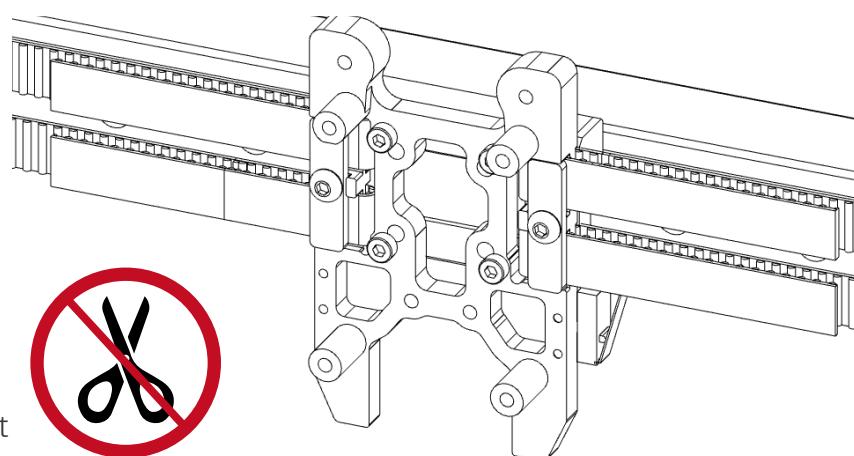
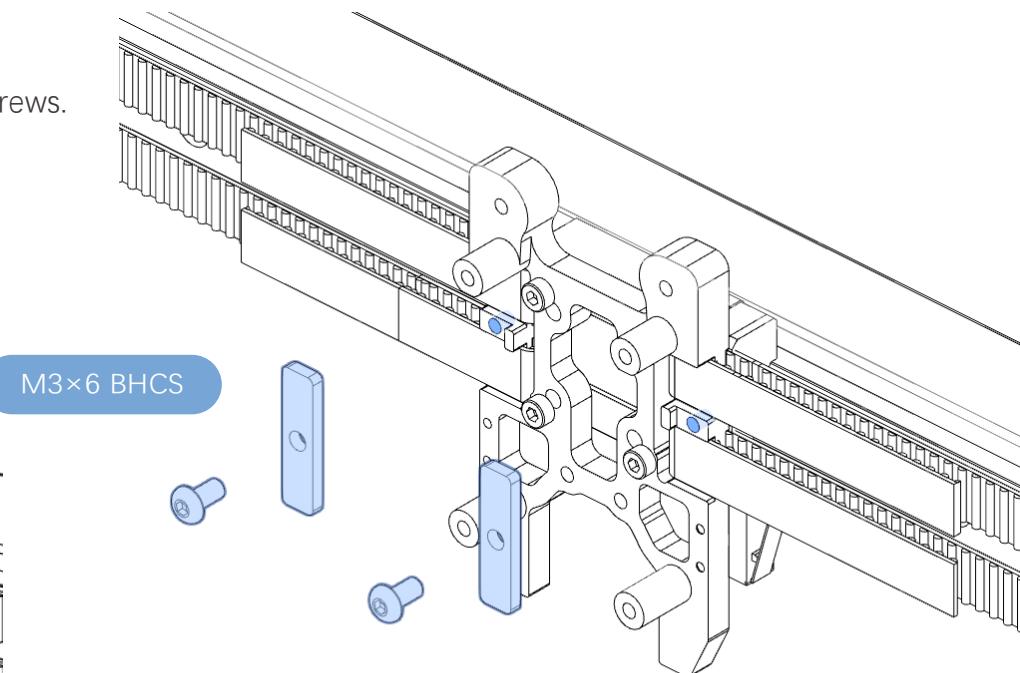
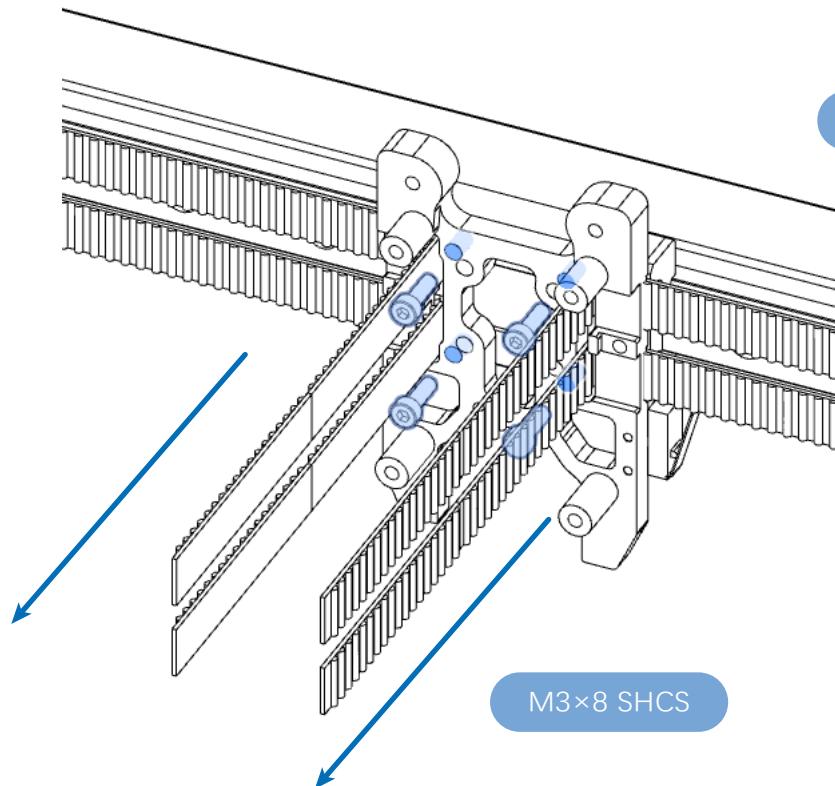






Instruction

After tightening the timing belt, secure the M3×8 SHCS screws.



Do Not Cut the Timing Belt at This Time

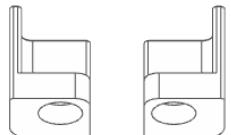
Wait for 24 Hours, Retighten the Timing Belt, Then Cut the Timing Belt

Before sitting down for a cup of coffee,
check what's left in the CNC KIT to prevent it from disappearing as scrap.



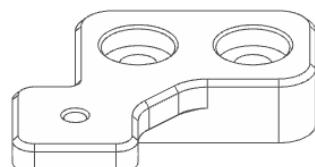
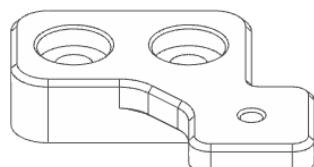
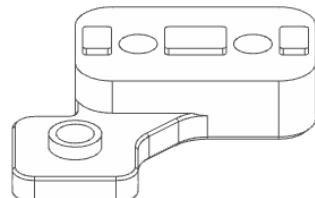
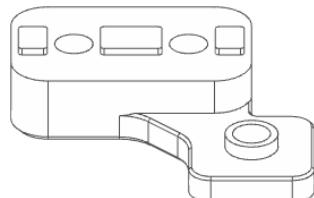
UHF Extension Block

This is the X-carriage extension block,
an essential component required when using the Rapido V2.0 hotend.



PEI Print Bed Locator

This is installed on the heated bed's aluminum
plate and is used to position the PEI print bed.



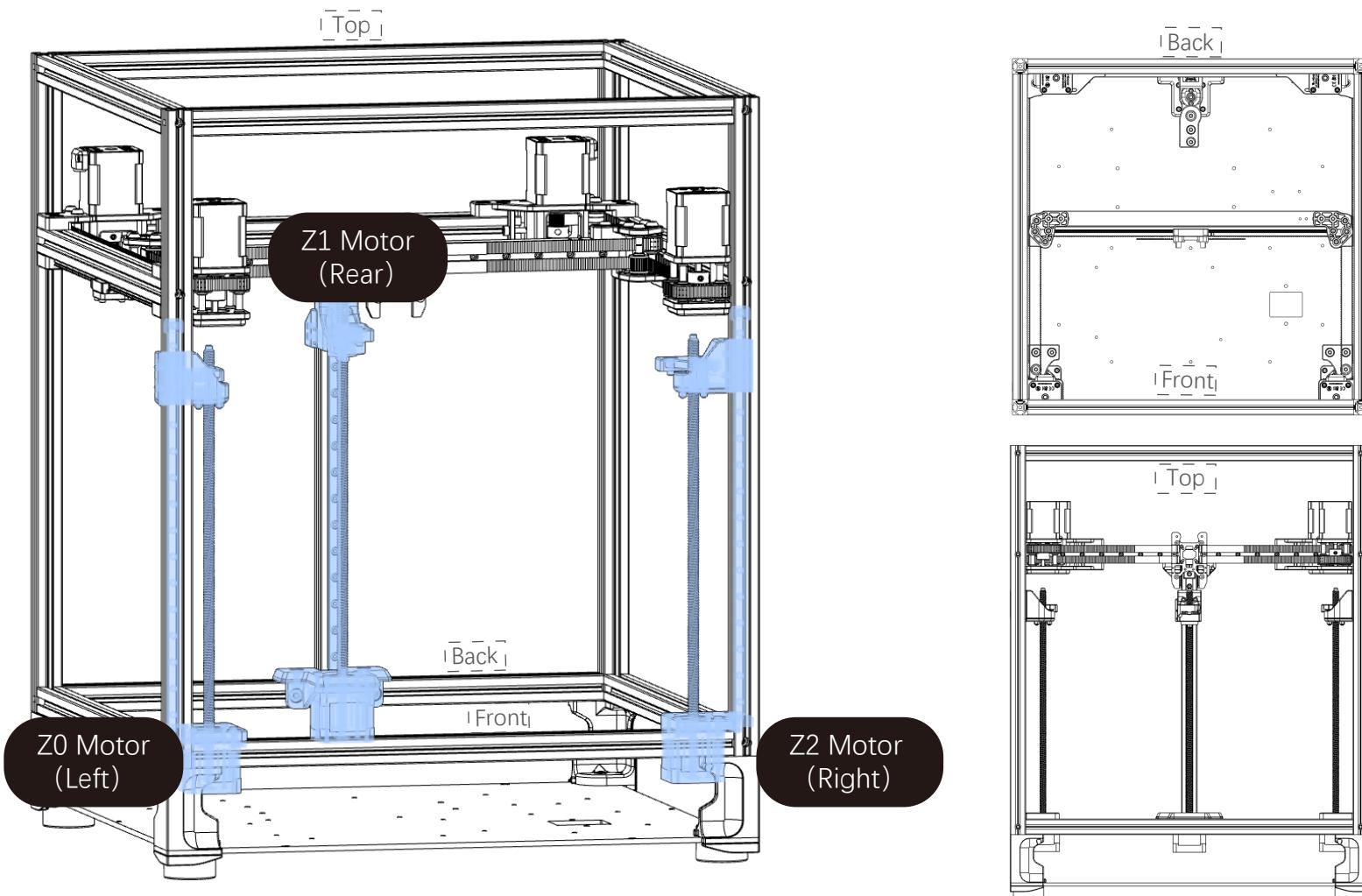
Front Idler Bracket for 2WD

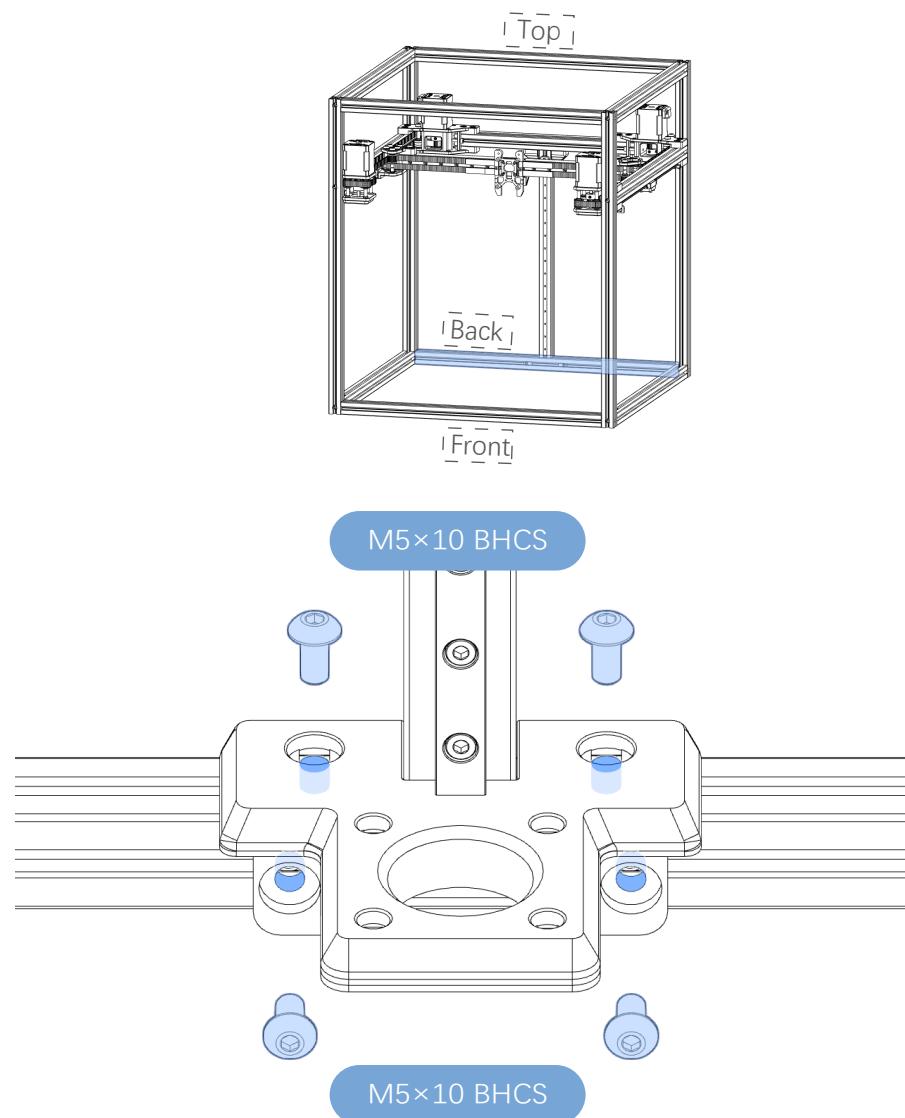
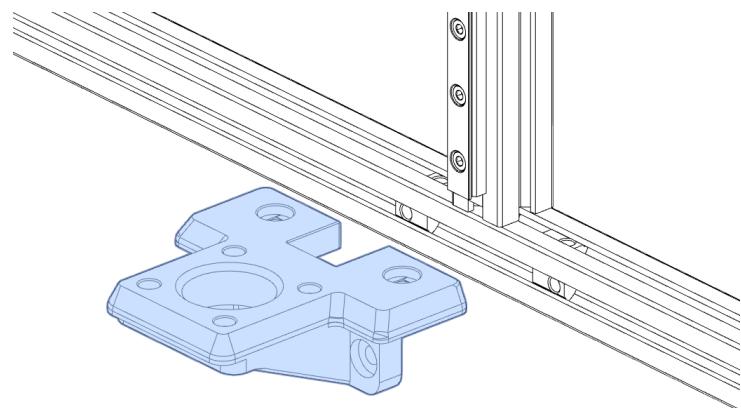
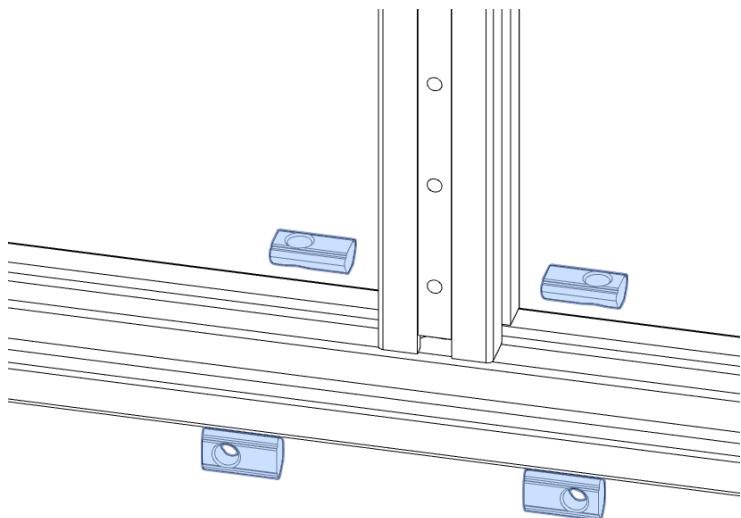
This is the front idler bracket for the 2WD system.
Once we assemble the AWD, these parts will be idle.

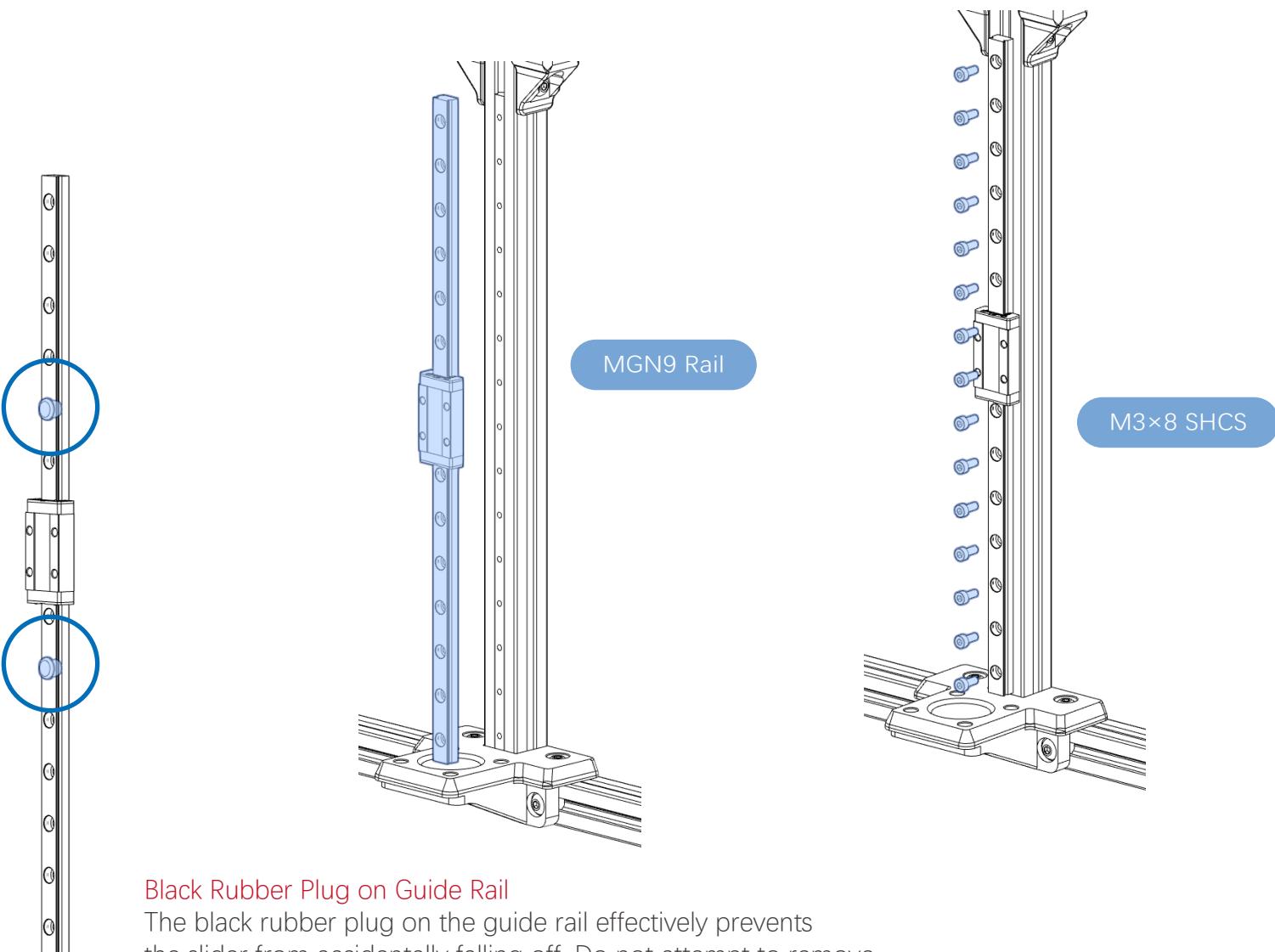
Take a Break

Stop and listen to a song, have a cup of coffee.
Alternatively, organize the remaining parts and
tidy up your workspace. Then start fresh.

Waiting for the rendered image to fill...

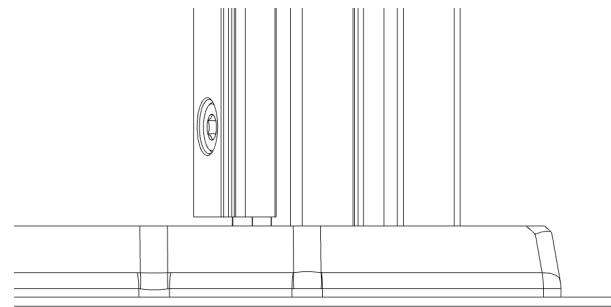
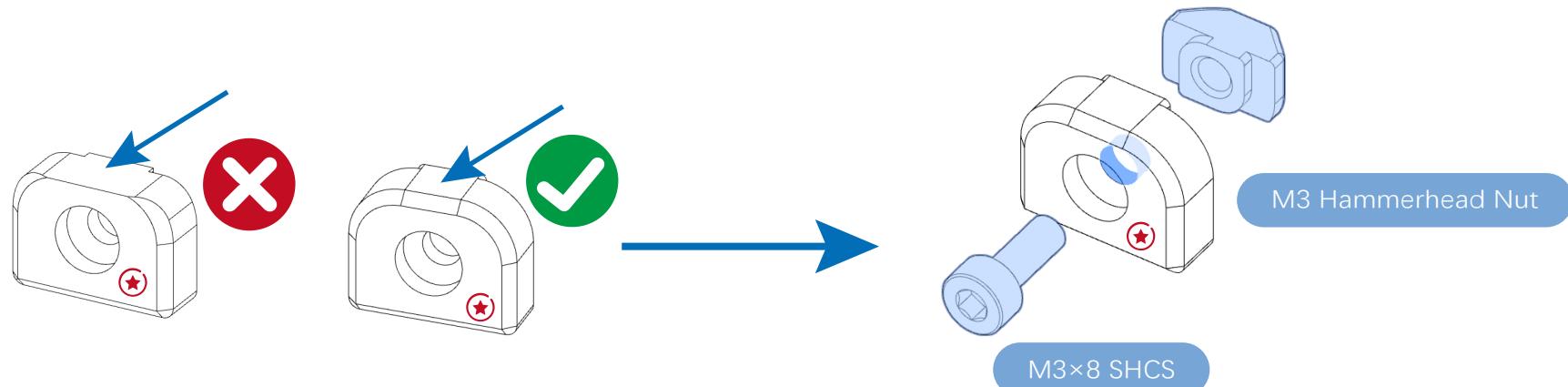






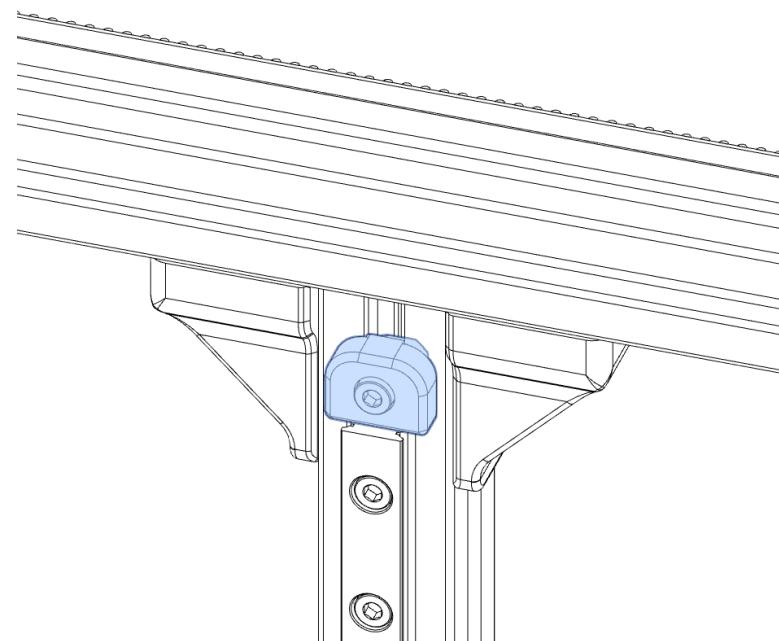
Black Rubber Plug on Guide Rail

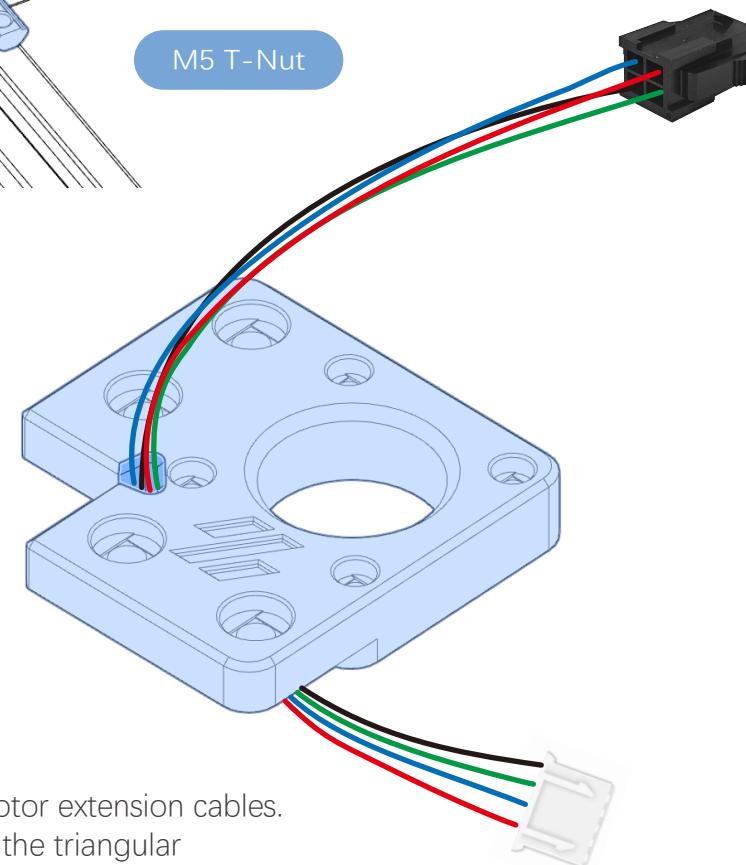
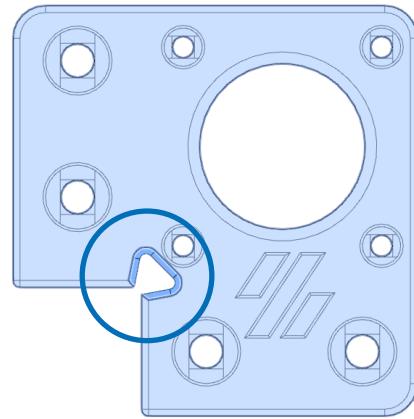
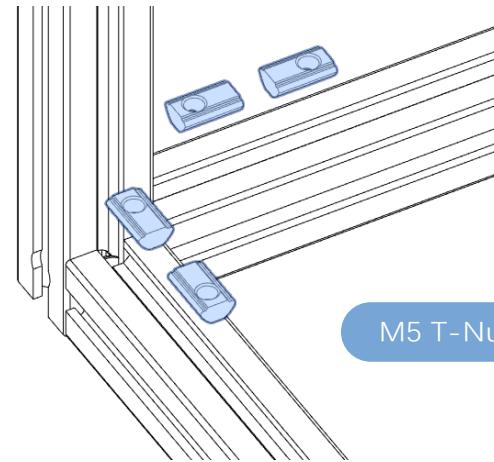
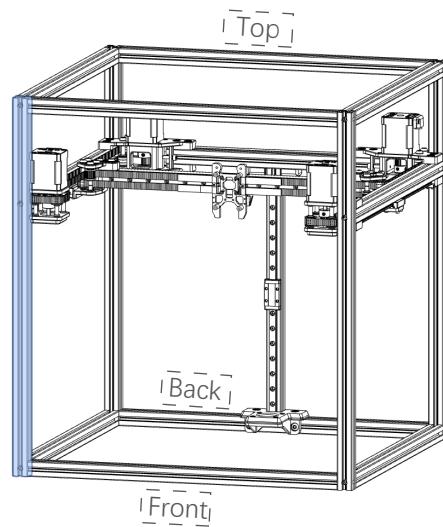
The black rubber plug on the guide rail effectively prevents the slider from accidentally falling off. Do not attempt to remove it before installing the screws. This will help you succeed.



BOTTOM GAP

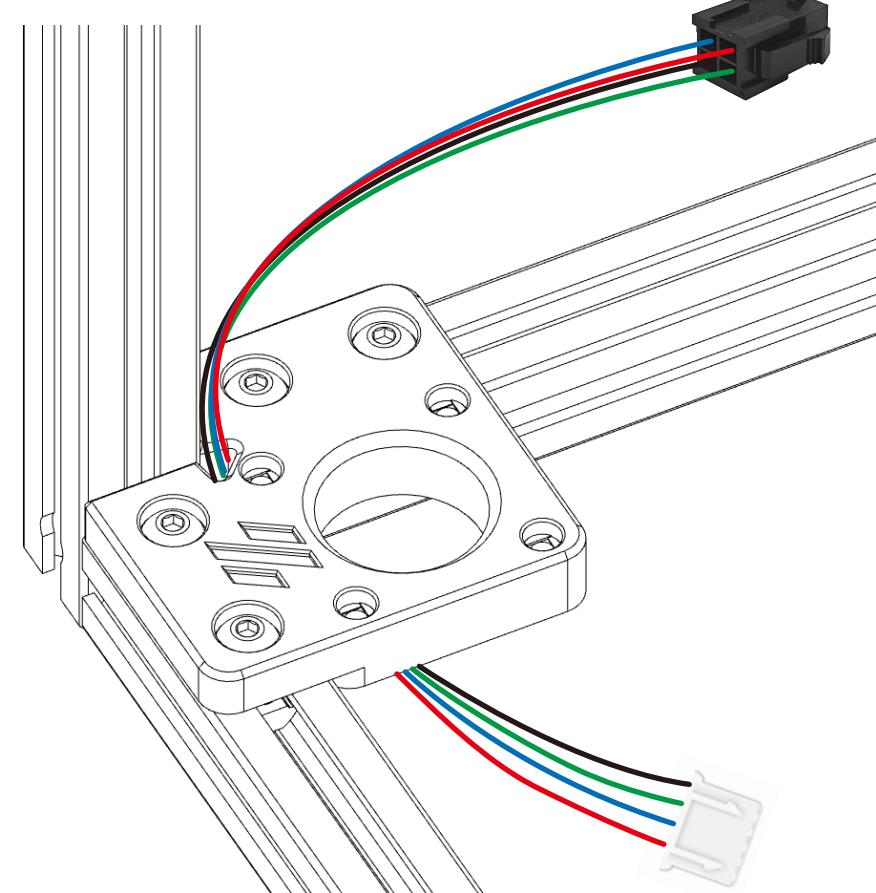
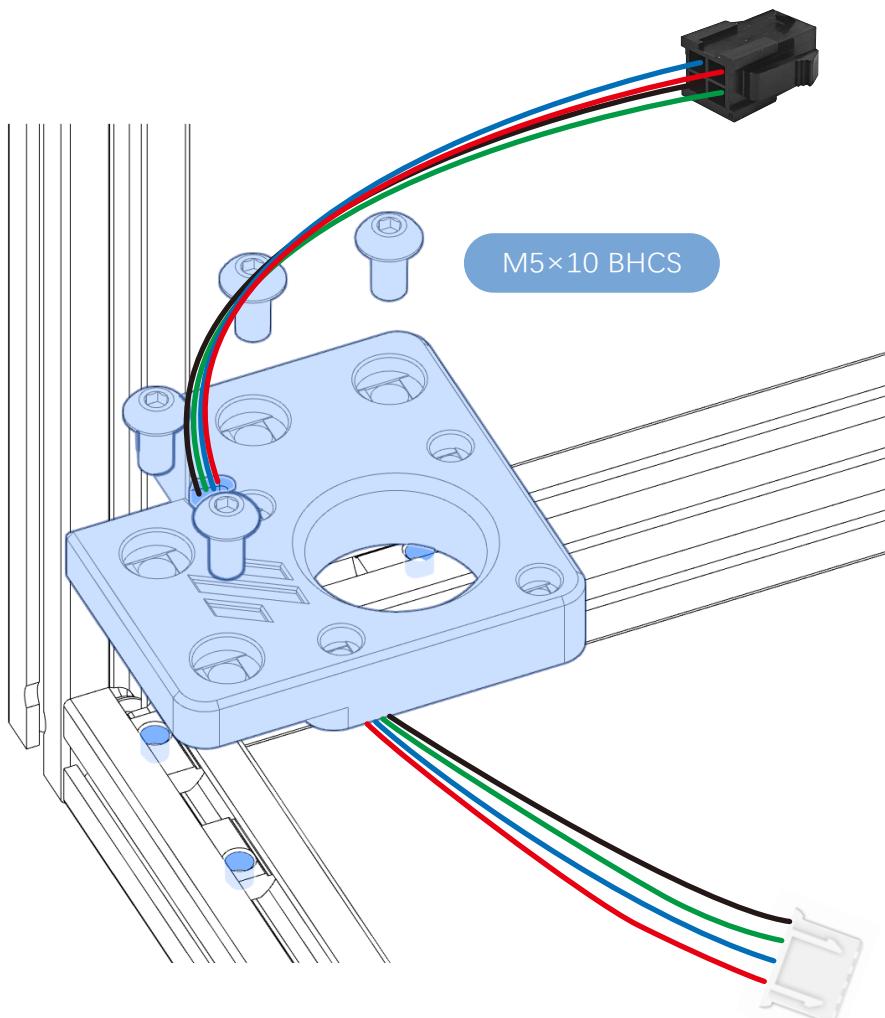
Leave a small gap between the printed part and the rail. 1-2mm is fine.

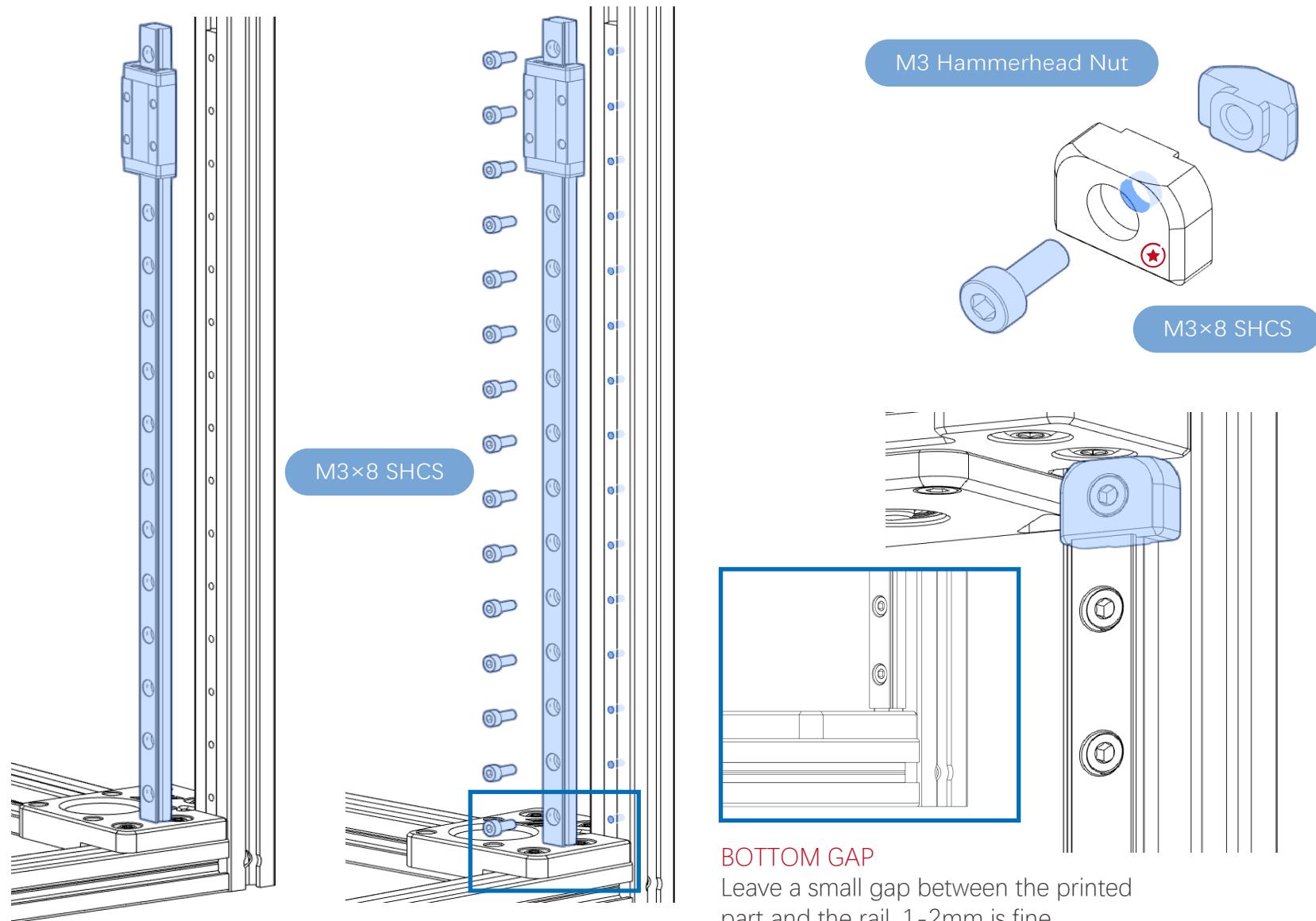


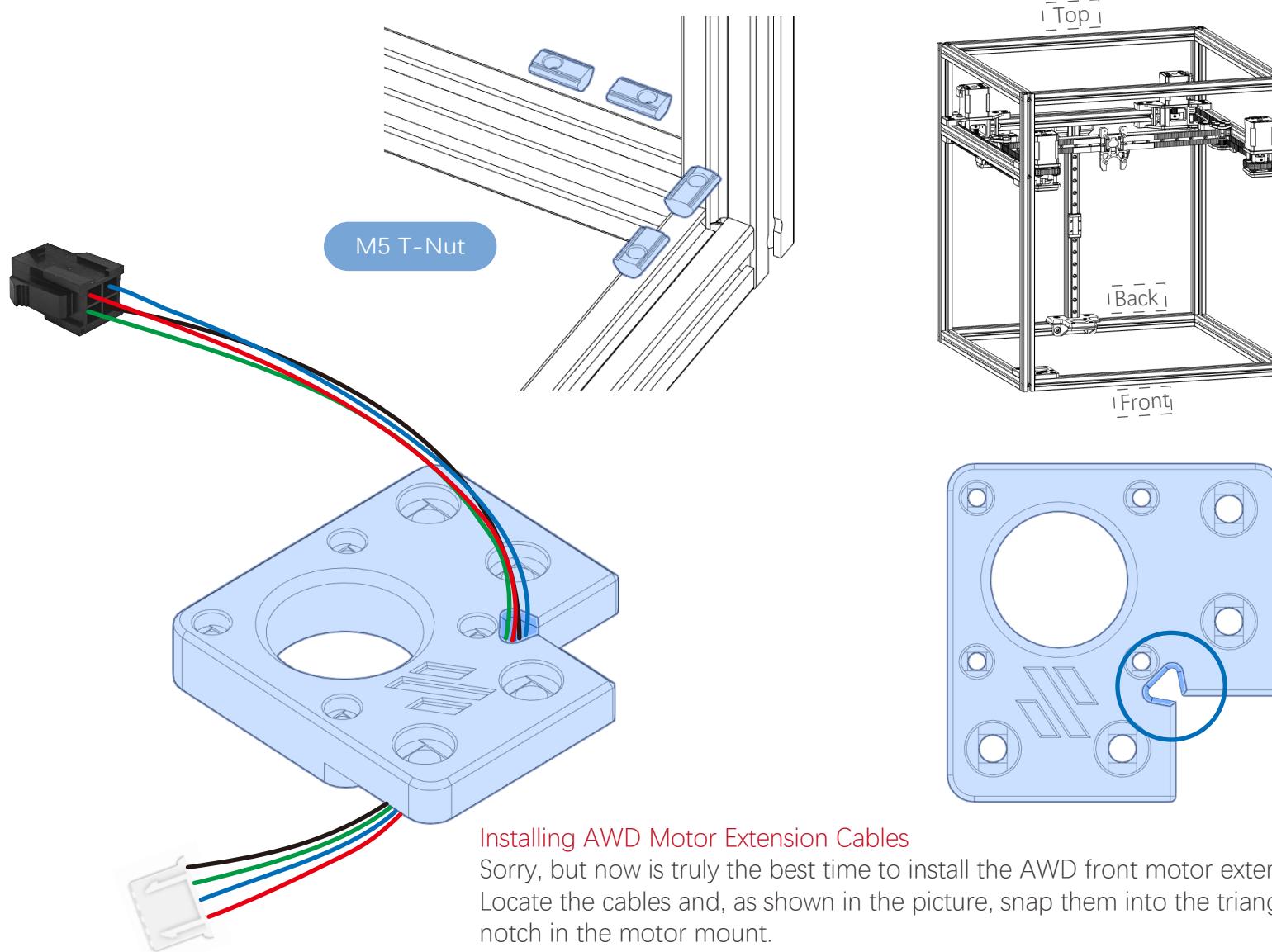


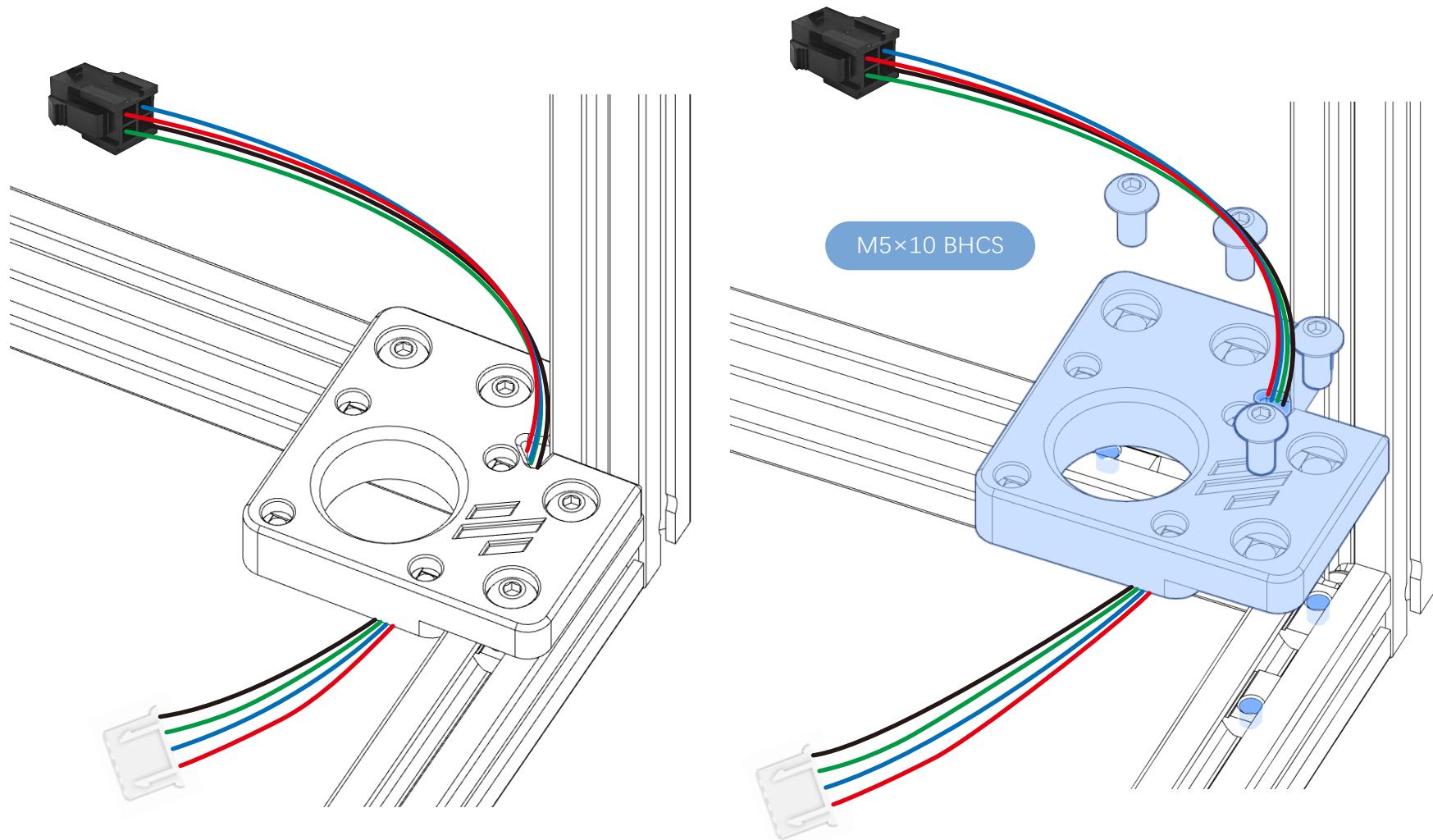
Installing AWD Motor Extension Cables

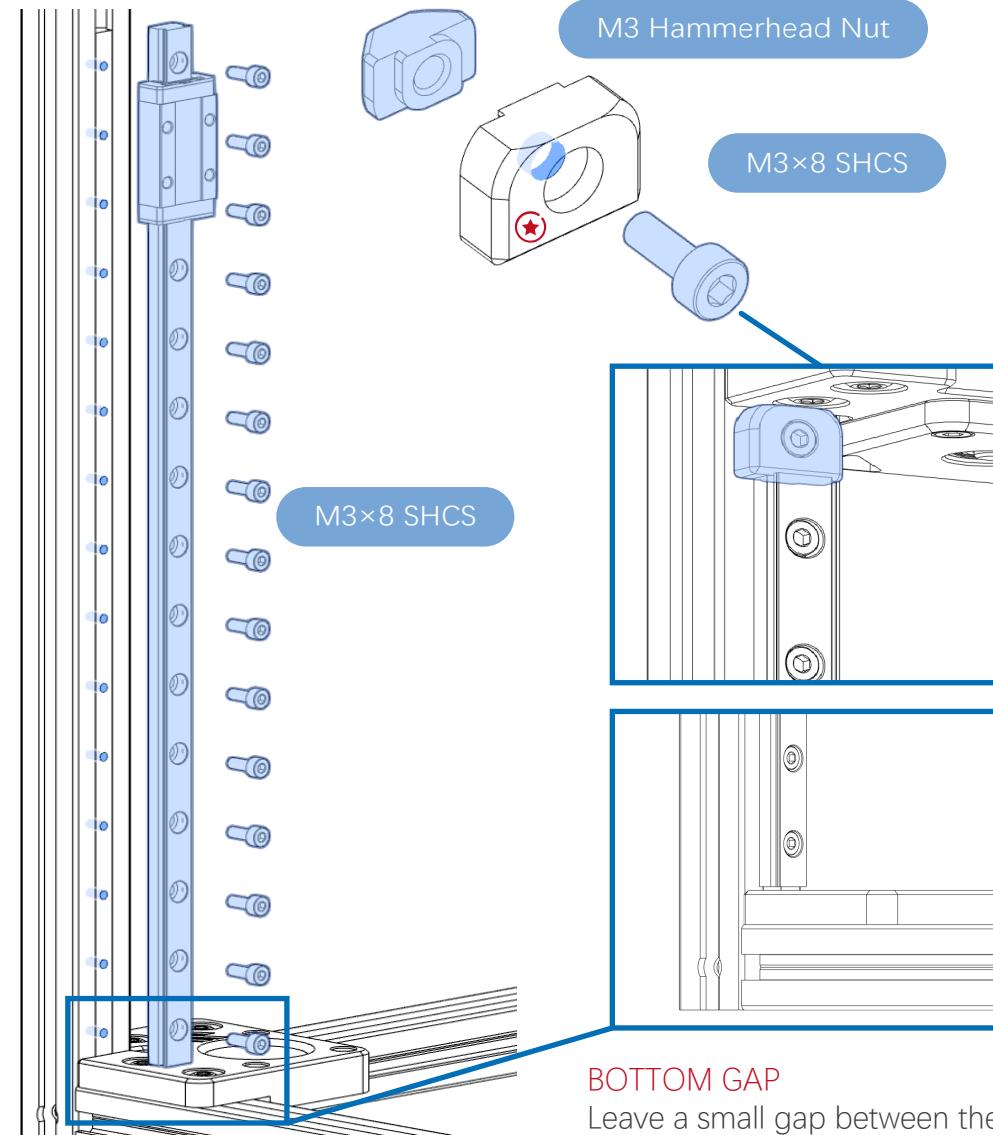
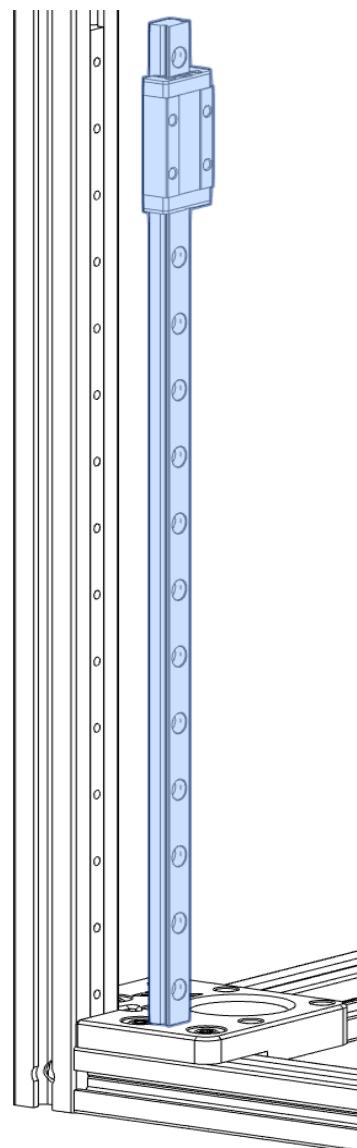
Sorry, but now is truly the best time to install the AWD front motor extension cables. Locate the cables and, as shown in the picture, snap them into the triangular notch in the motor mount.



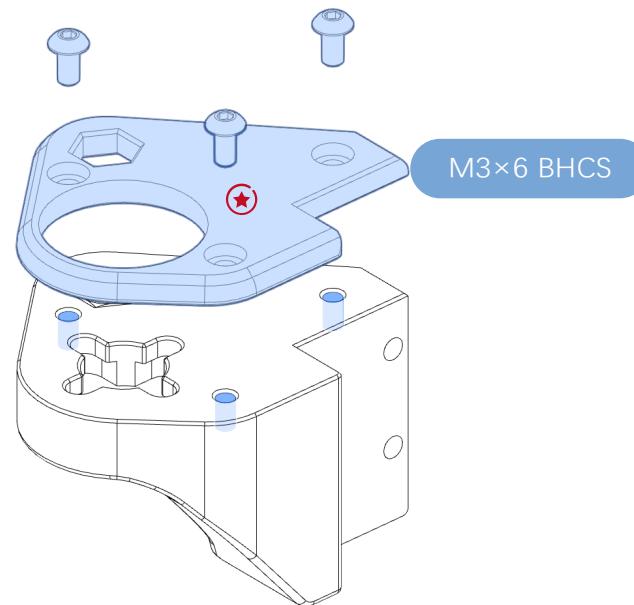
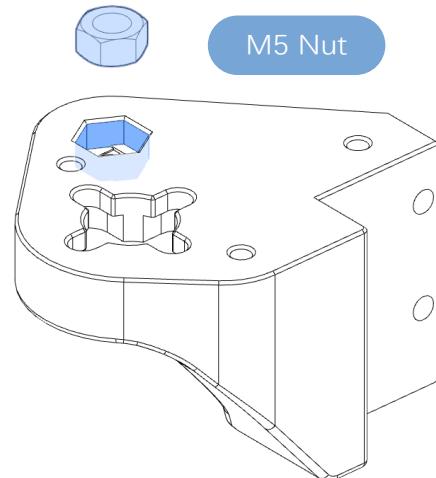






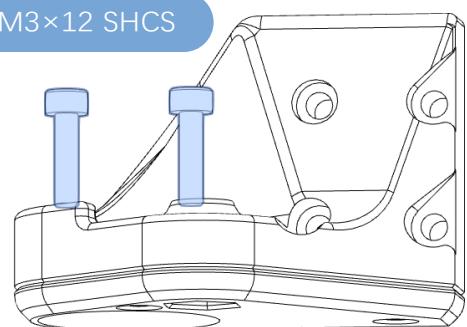
**BOTTOM GAP**

Leave a small gap between the printed part and the rail. 1-2mm is fine.

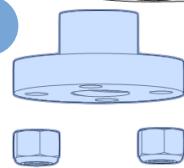


DON'T FULLY TIGHTEN

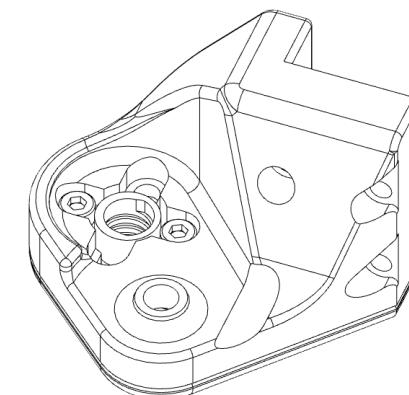
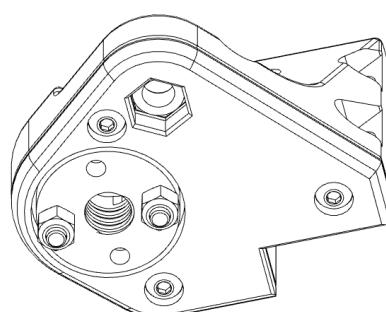
For best results do not tighten fully.



lead screw Nut

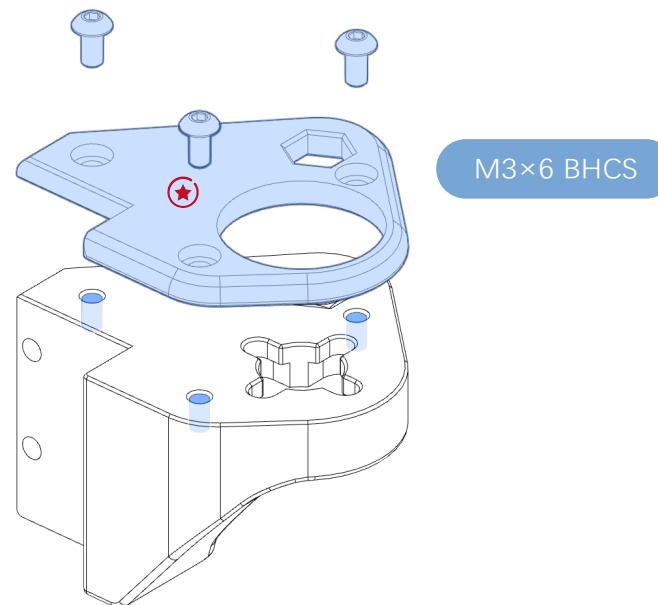
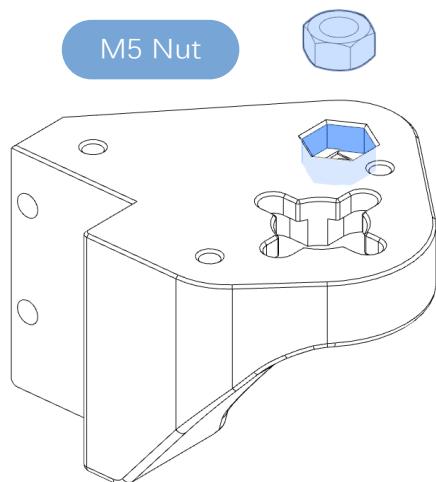


M3 Lock Nut



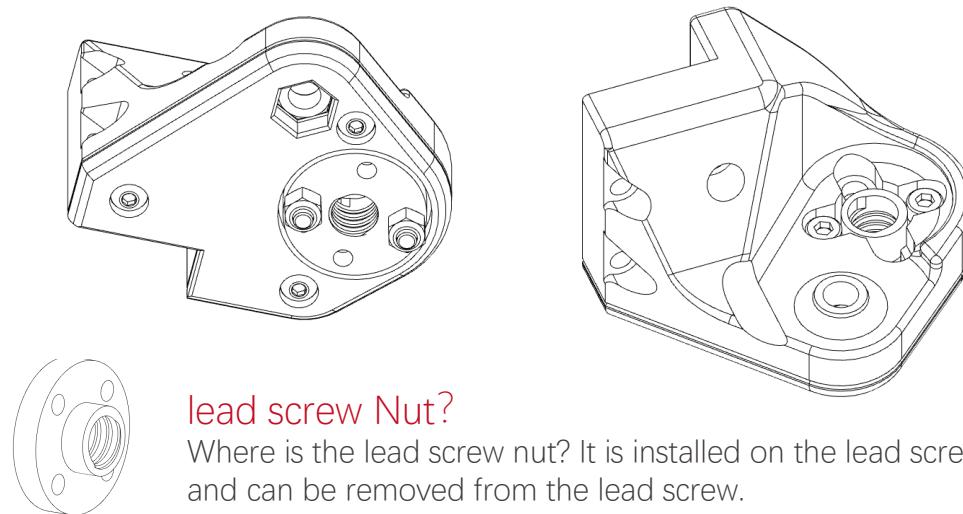
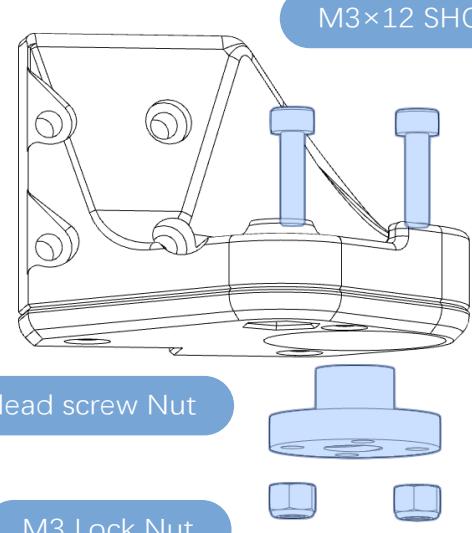
lead screw Nut?

Where is the lead screw nut? It is installed on the lead screw motor and can be removed from the lead screw.



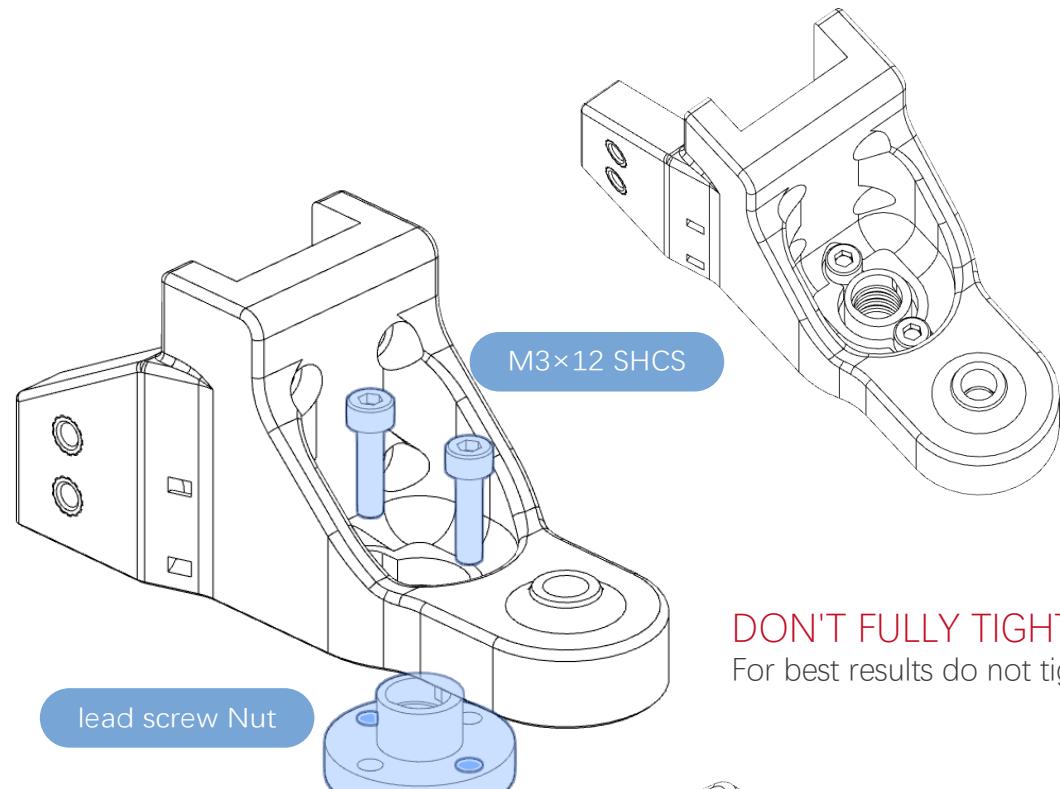
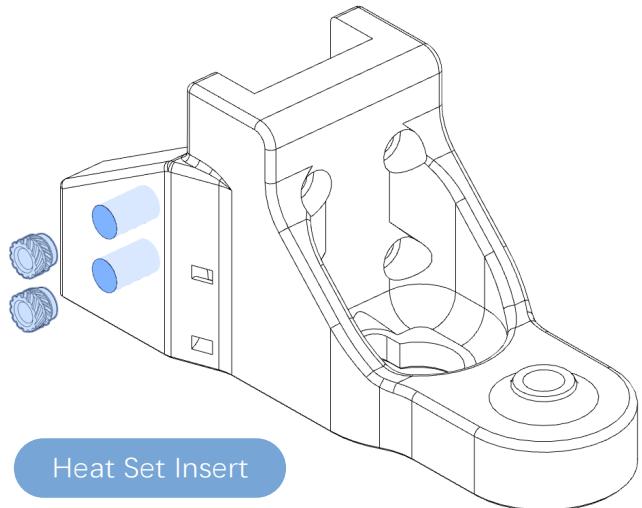
DON'T FULLY TIGHTEN

For best results do not tighten fully.

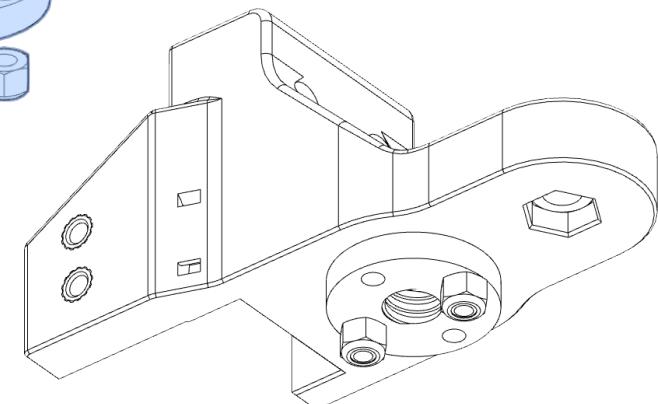
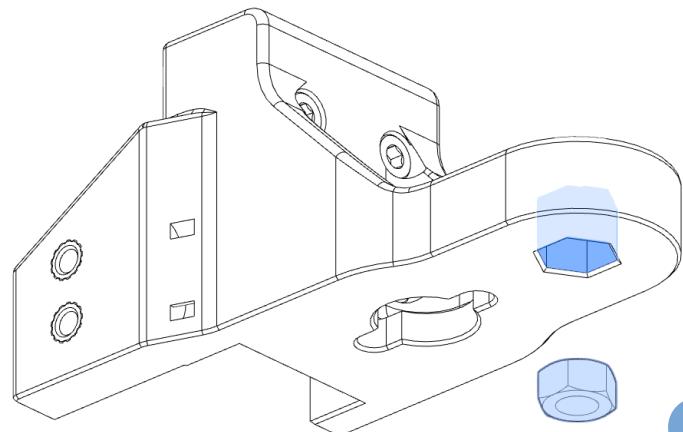


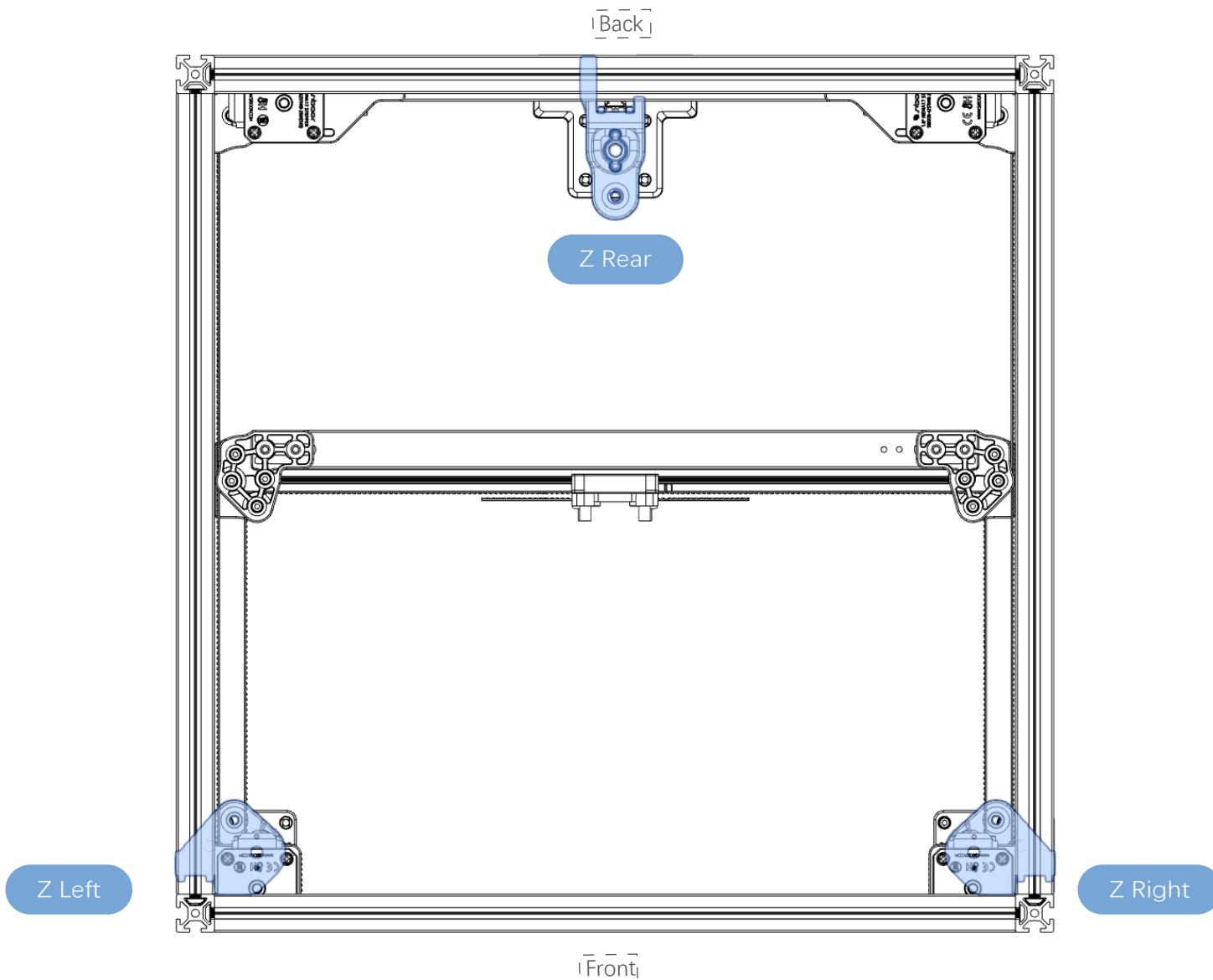
lead screw Nut?

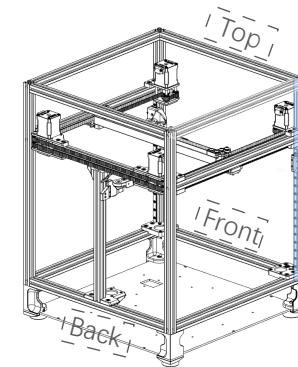
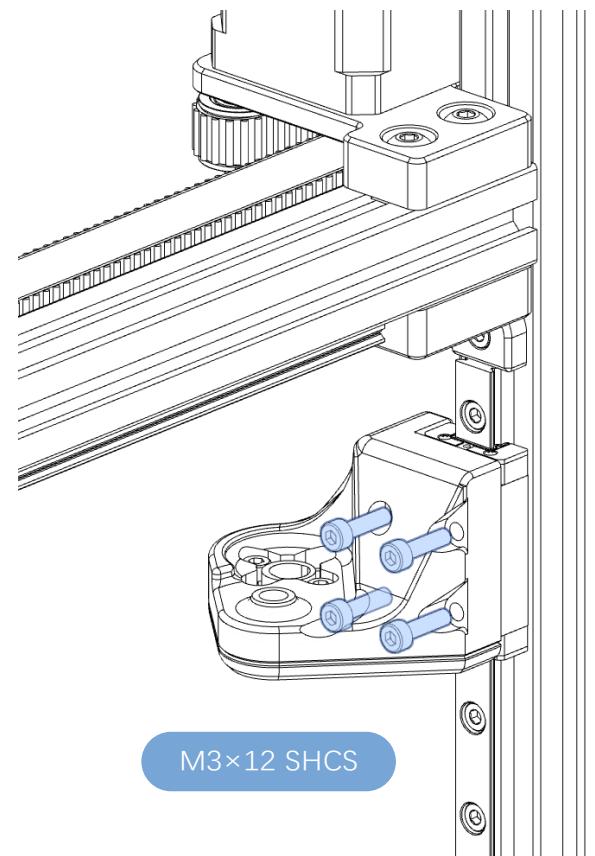
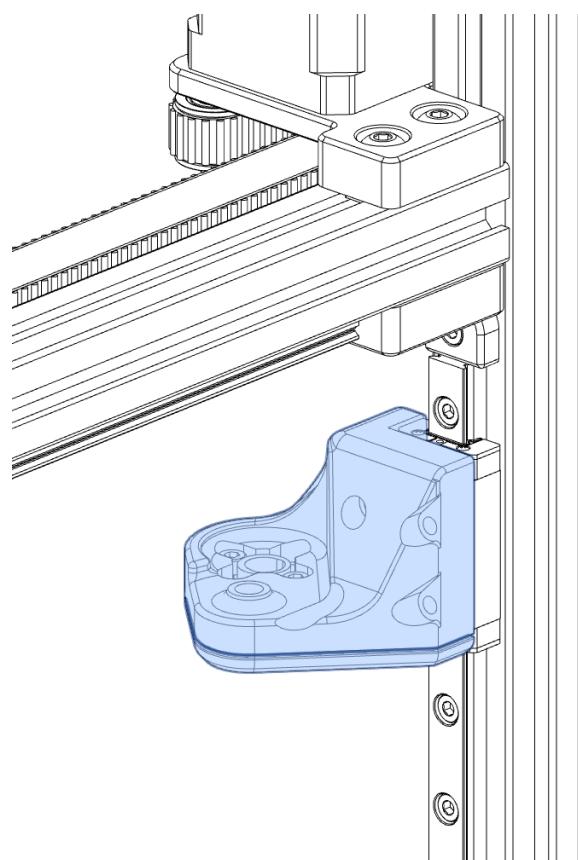
Where is the lead screw nut? It is installed on the lead screw motor and can be removed from the lead screw.

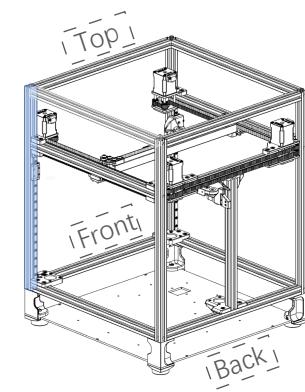
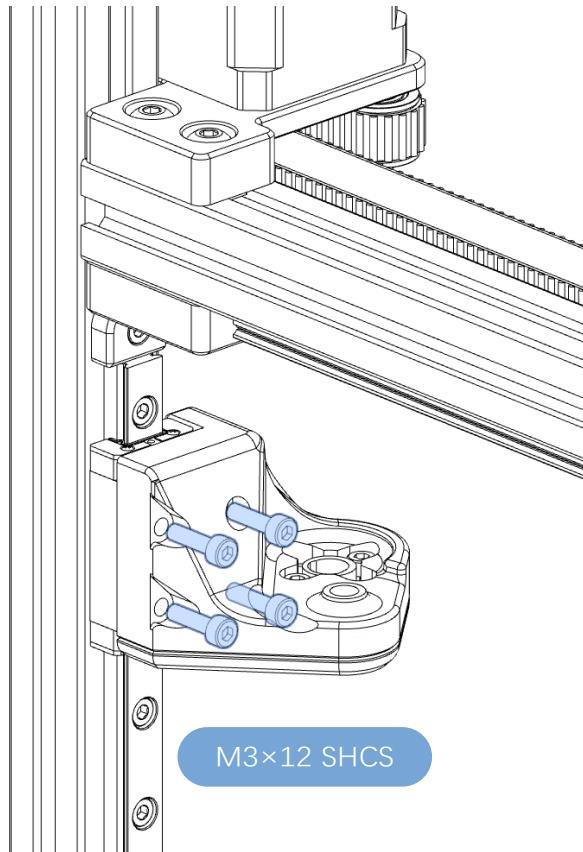
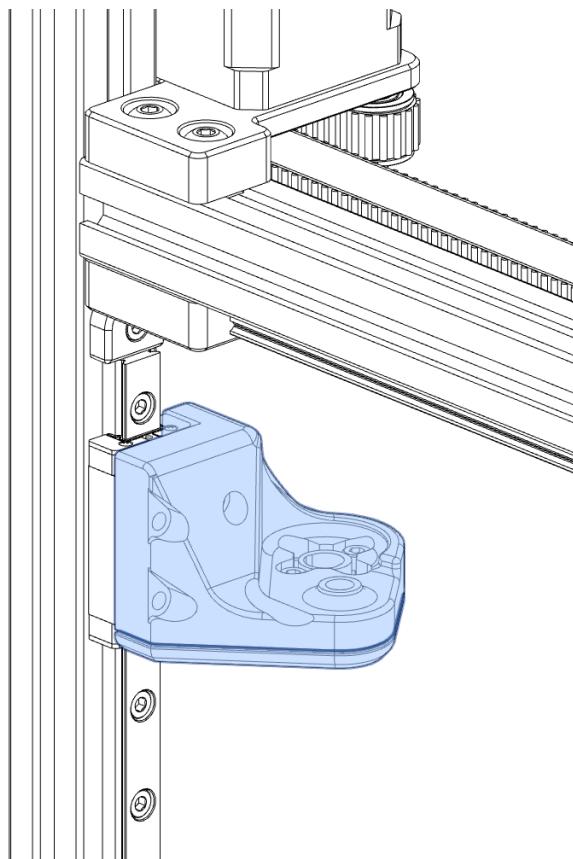


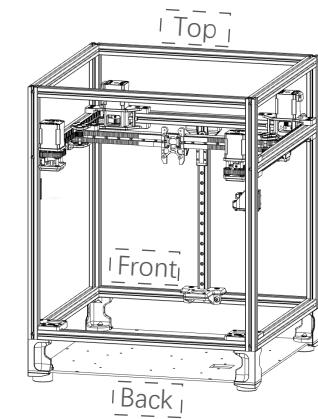
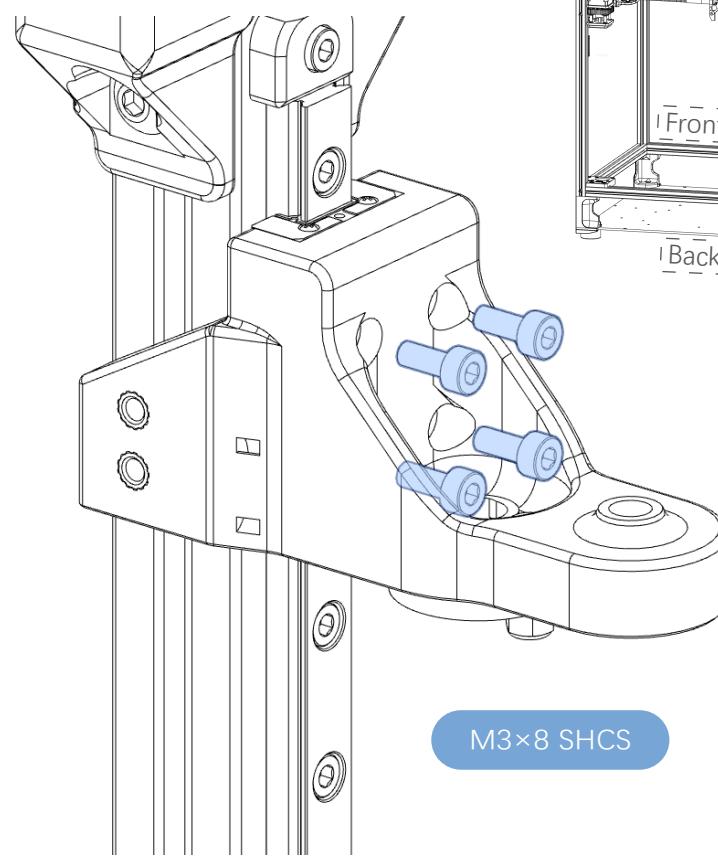
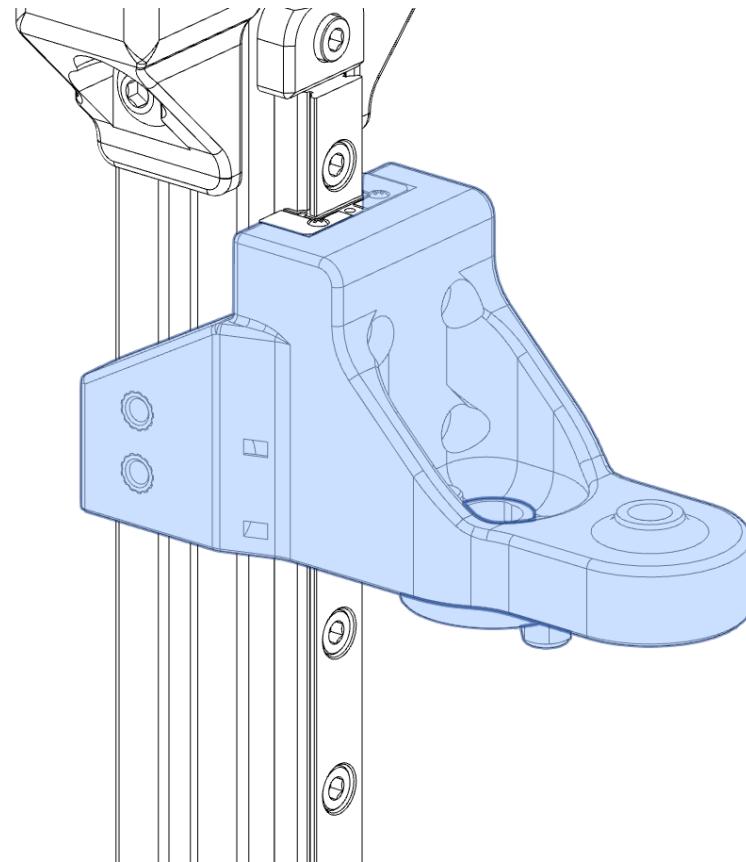
DON'T FULLY TIGHTEN
For best results do not tighten fully.

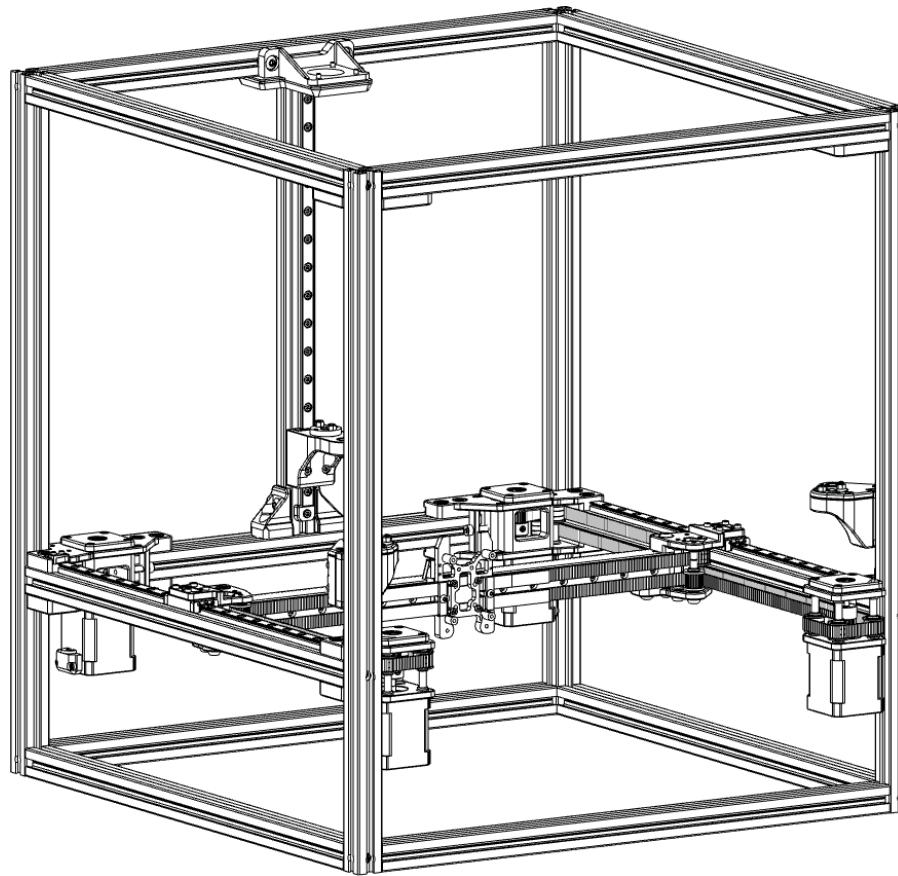




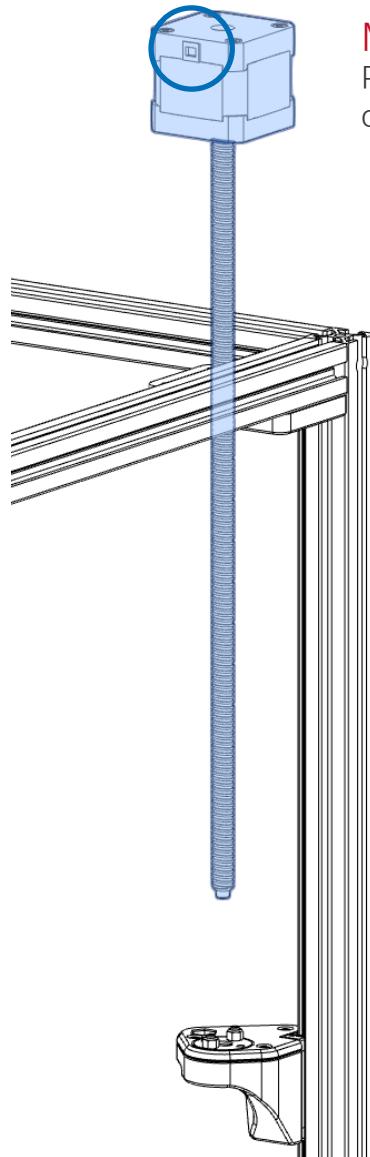






**FLIP UPSIDE DOWN**

Turn the printer upside down for the next assembly steps.

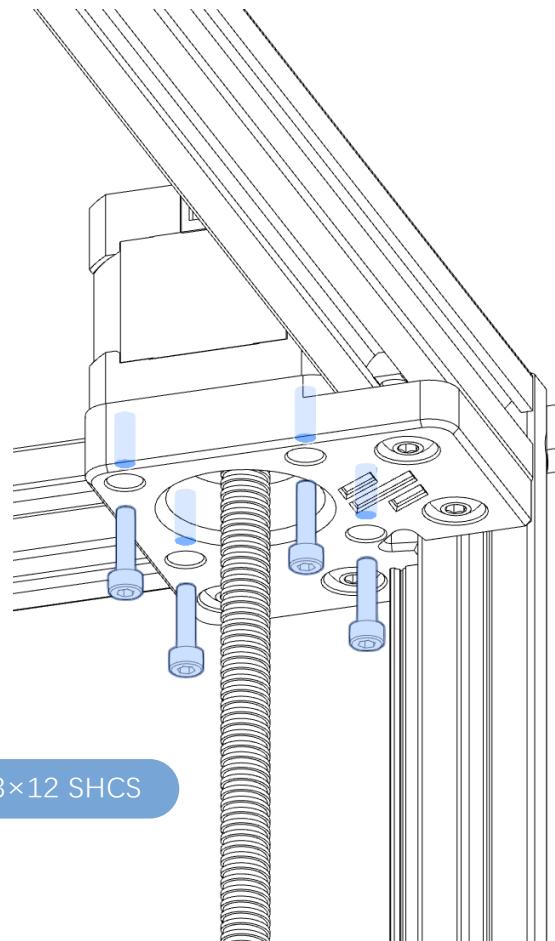


MOTOR ORIENTATION

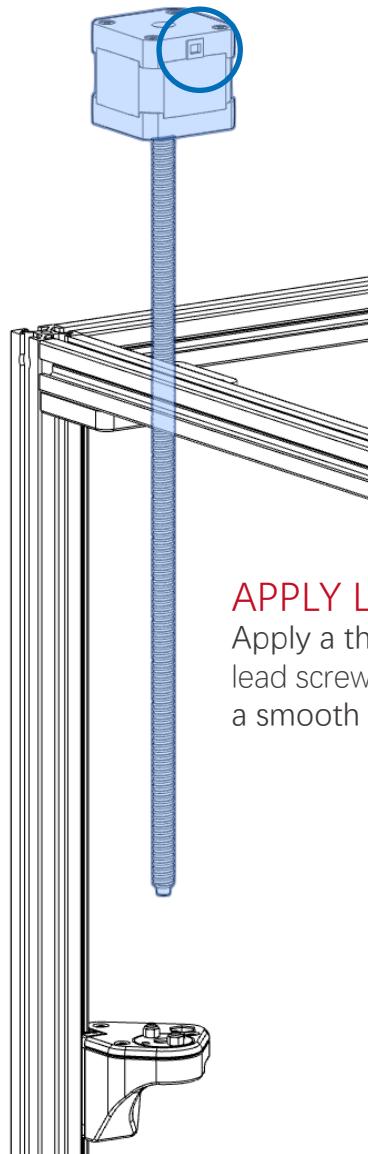
Pay attention to the orientation of the cable exit.

APPLY LUBRICATION

Apply a thin layer of grease to the lead screw to prevent rust and ensure a smooth operation.

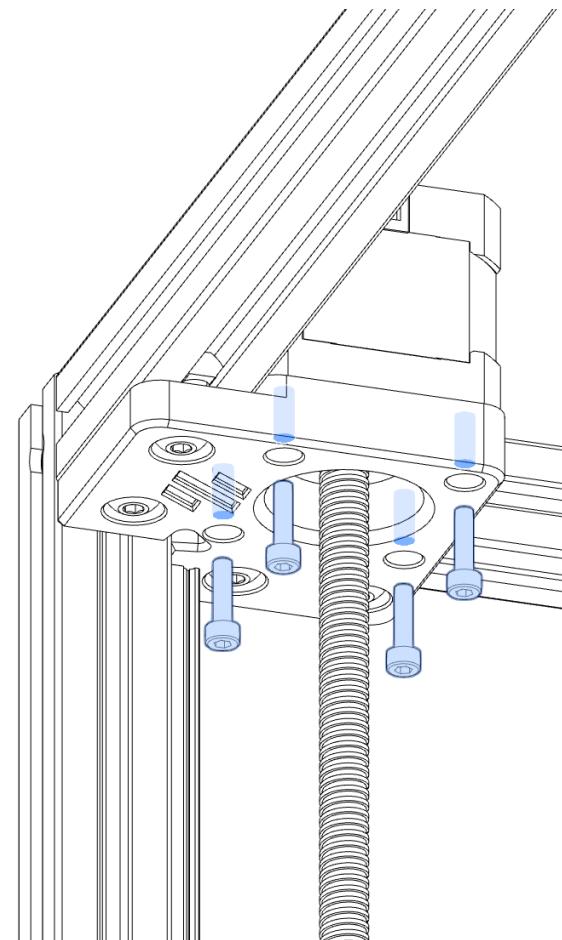


M3×12 SHCS



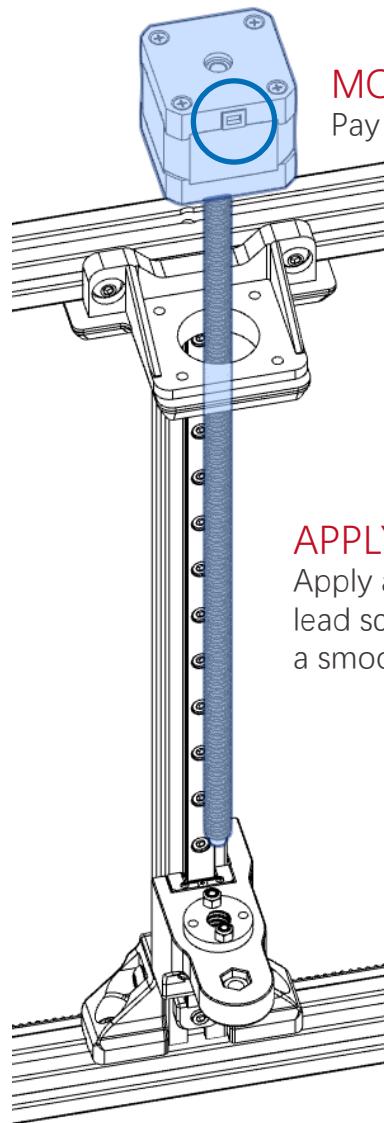
MOTOR ORIENTATION

Pay attention to the orientation of the cable exit.



APPLY LUBRICATION

Apply a thin layer of grease to the lead screw to prevent rust and ensure a smooth operation.

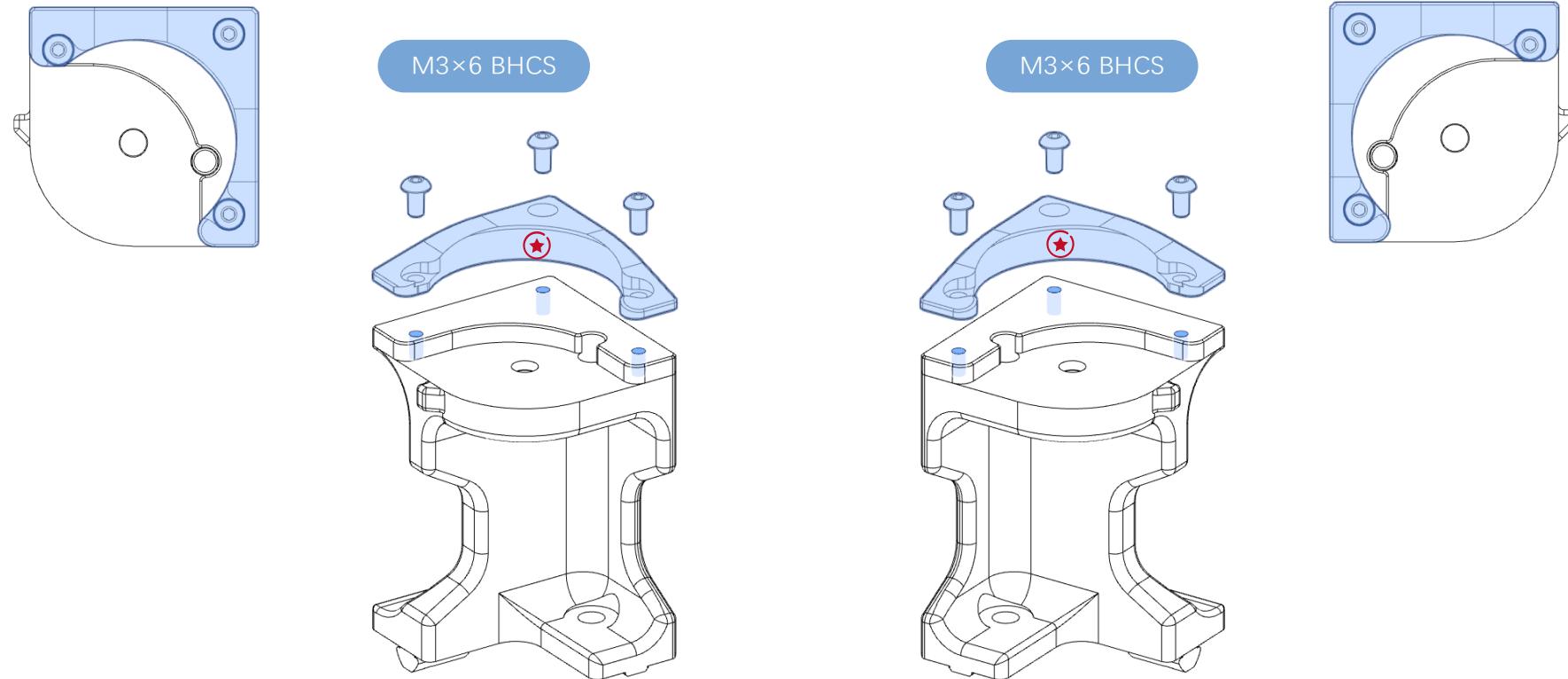


MOTOR ORIENTATION

Pay attention to the orientation of the cable exit.

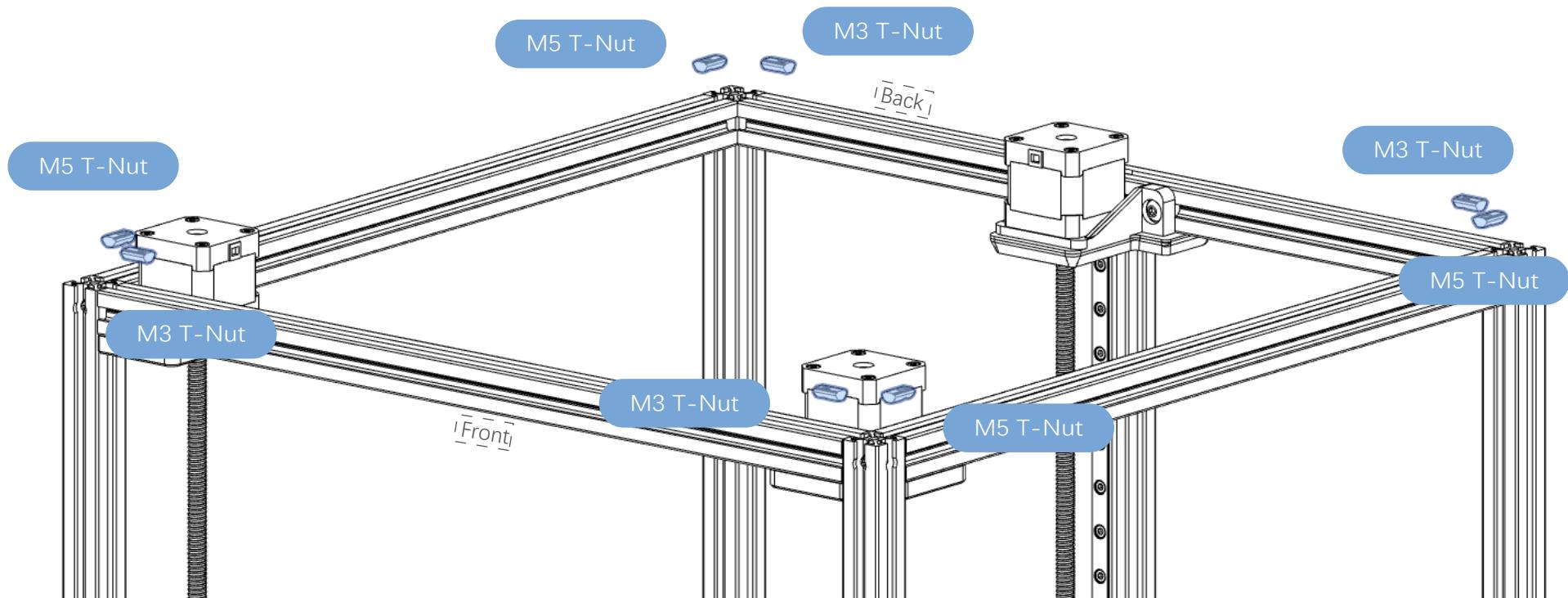
APPLY LUBRICATION

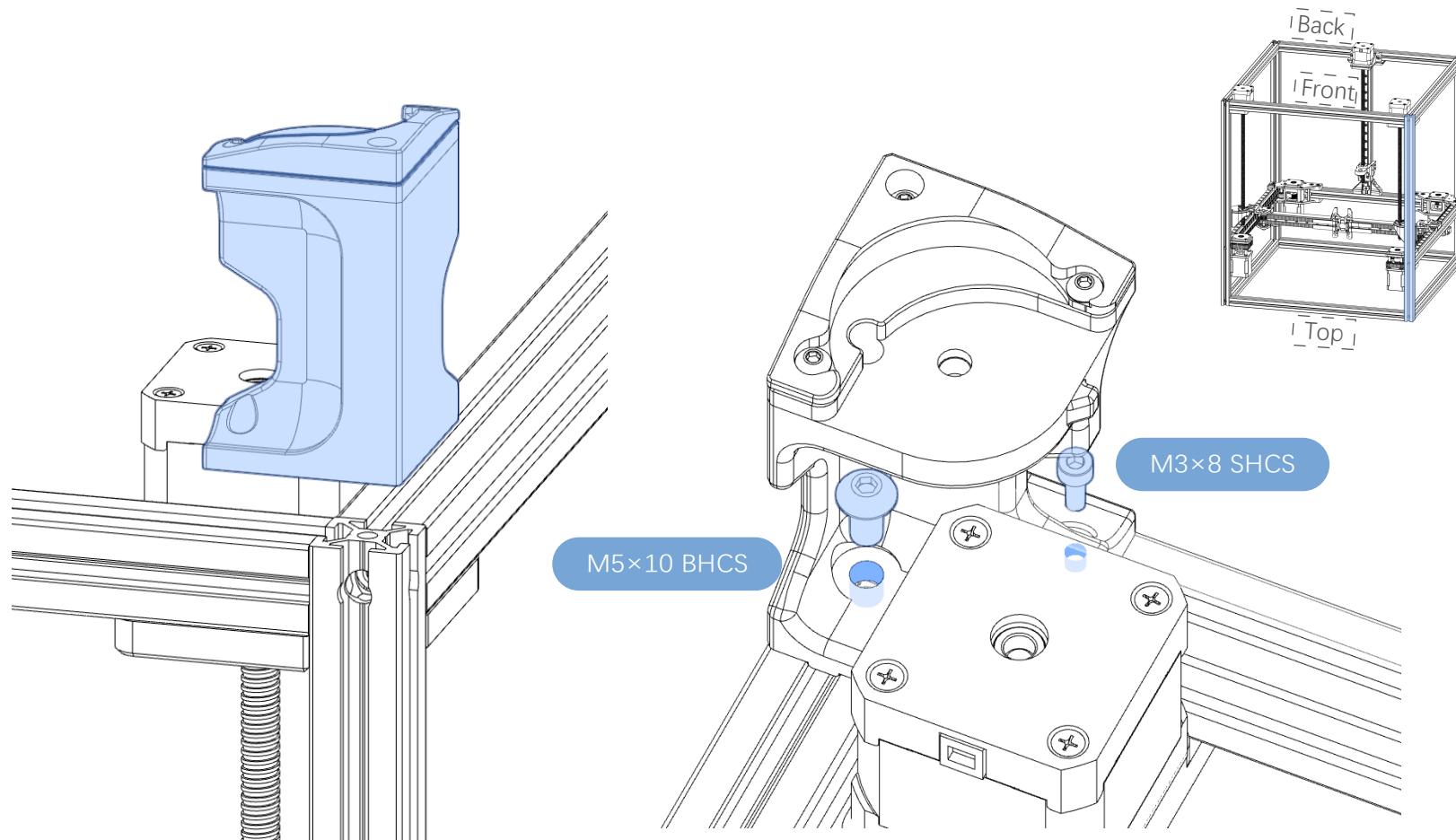
Apply a thin layer of grease to the lead screw to prevent rust and ensure a smooth operation.

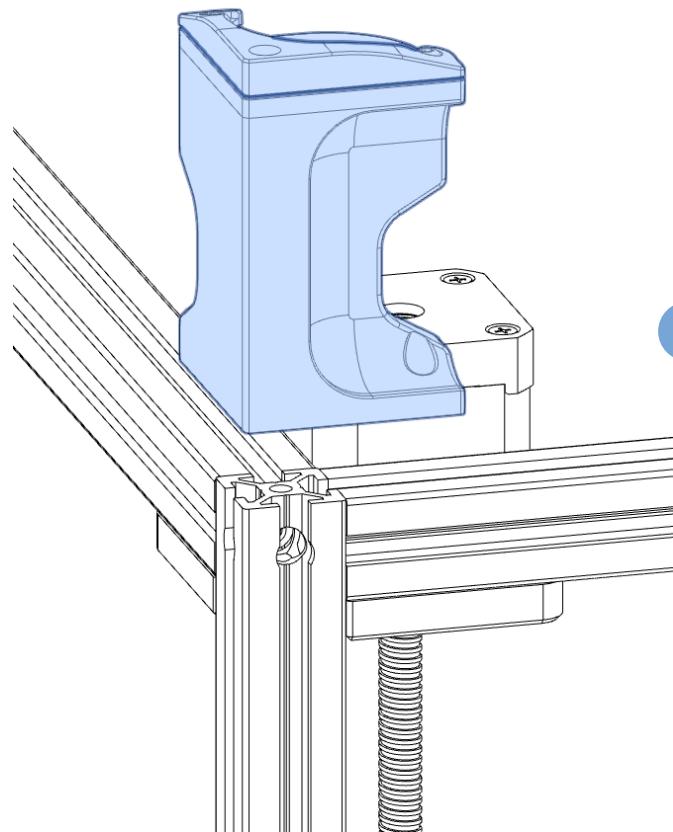


ASSEMBLE FOUR FEET

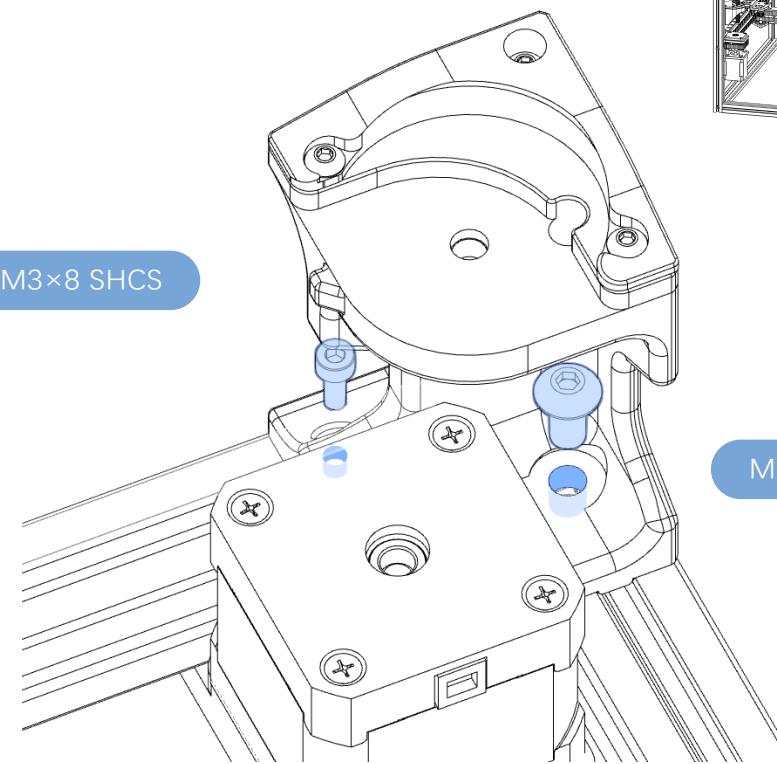
Repeat the instructions and assemble all four feet.



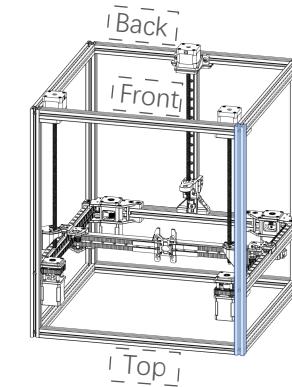


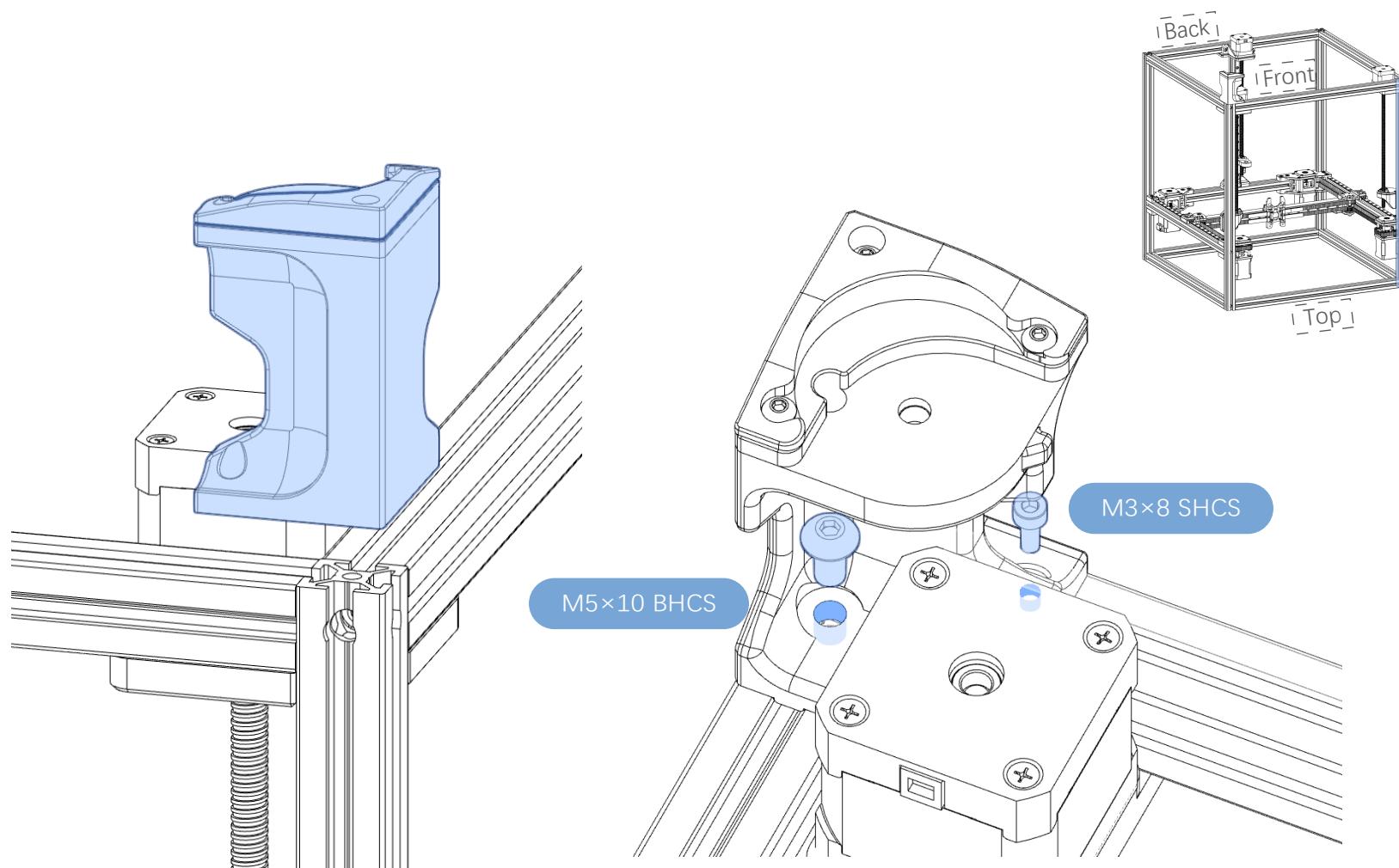


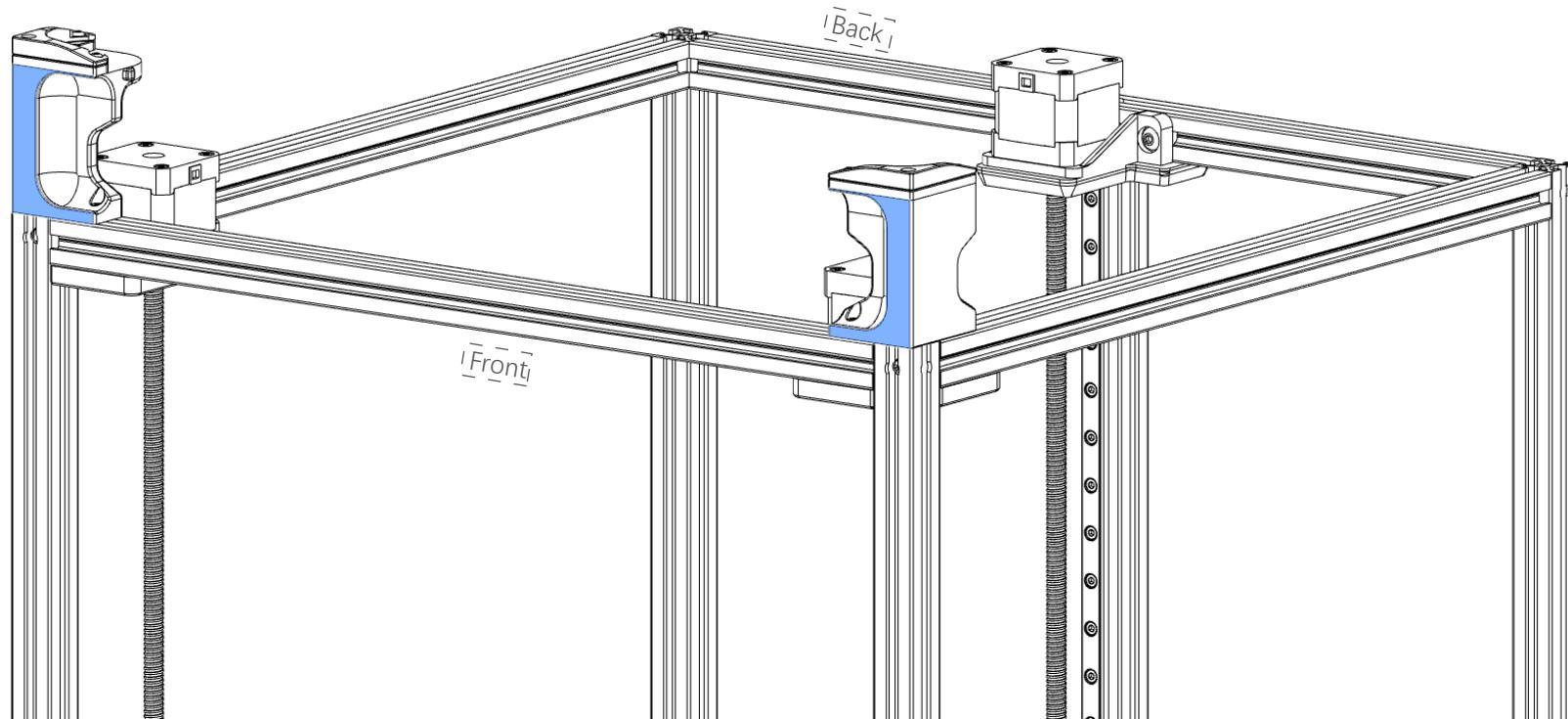
M3×8 SHCS



M5×10 BHCS

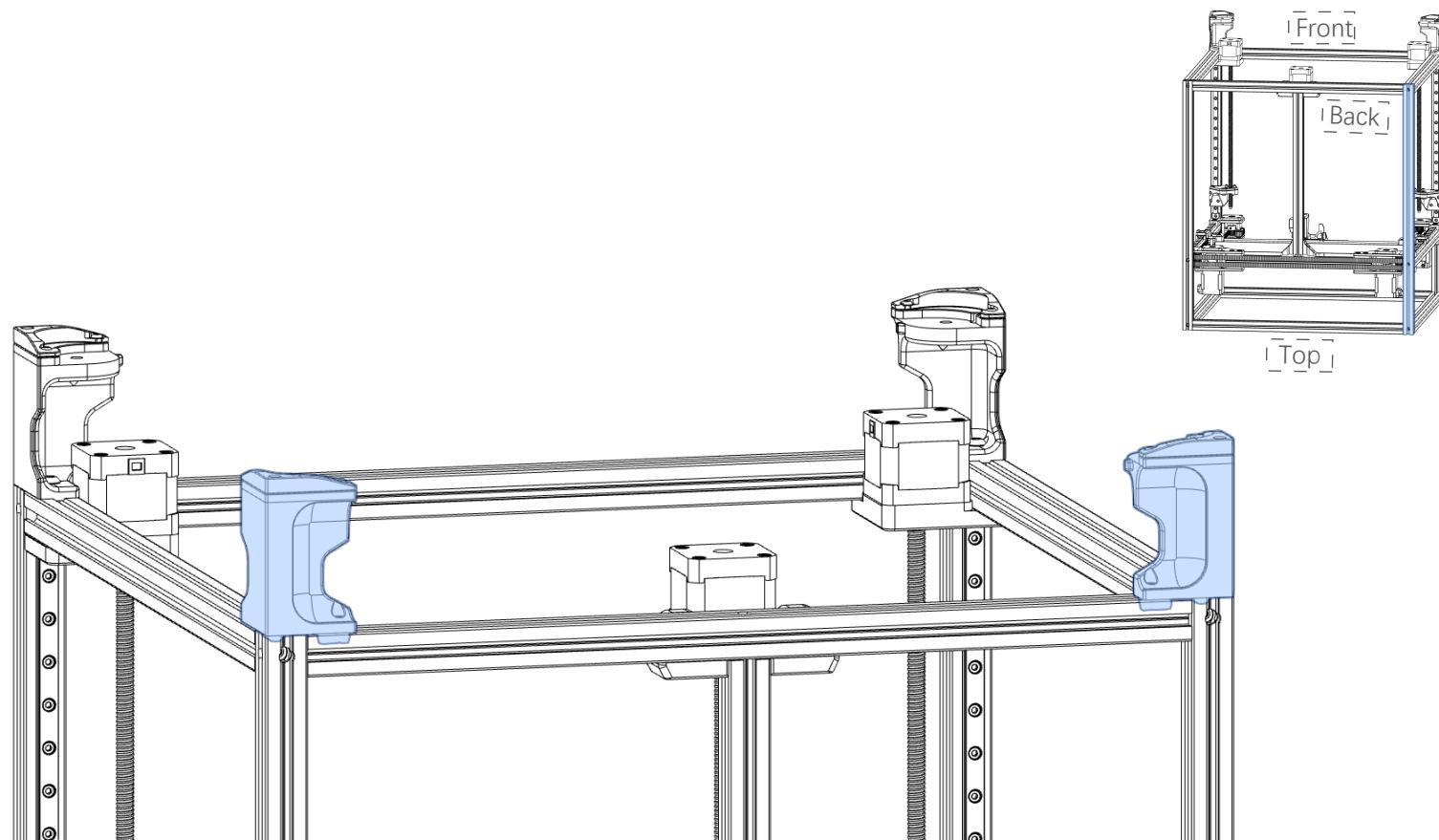






MIND THE PART ORIENTATION

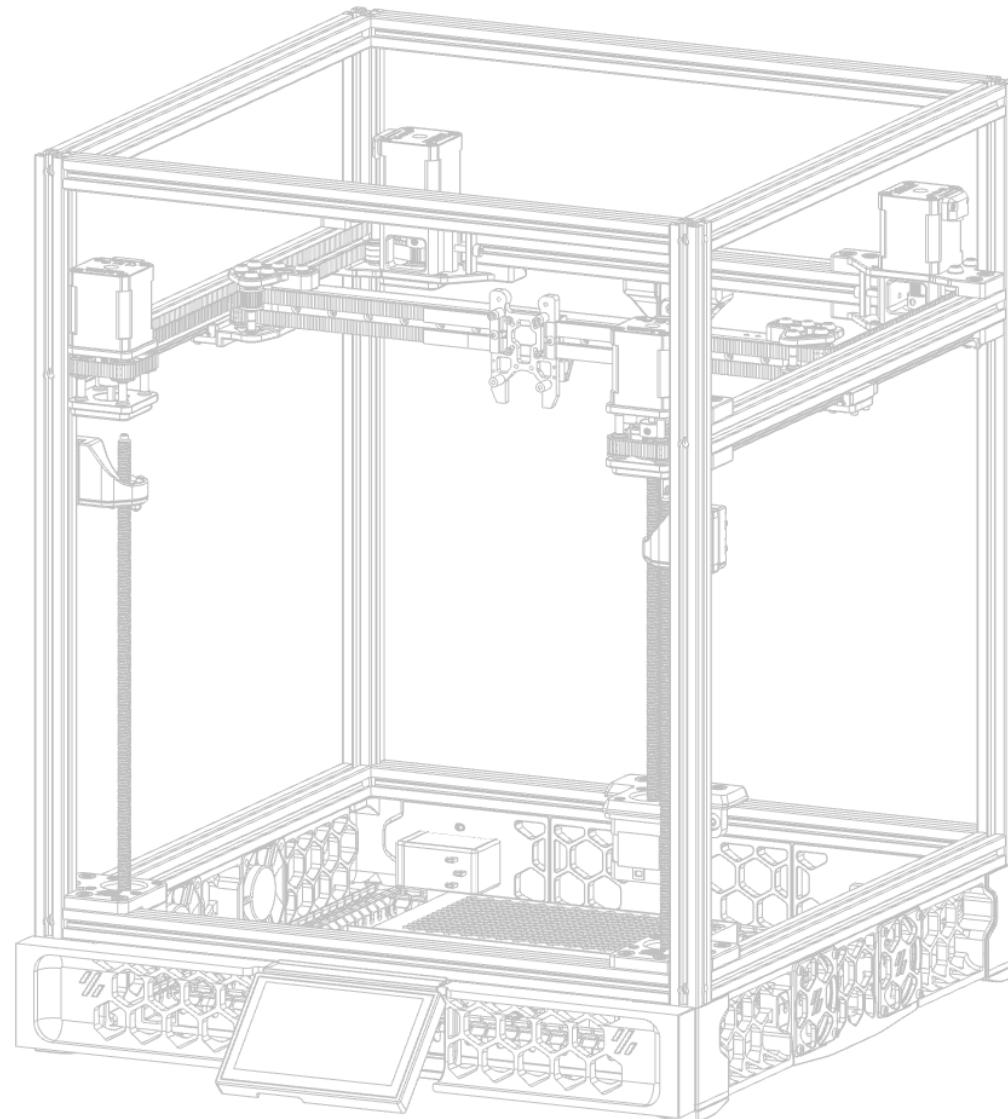
The profile shown above are towards the front and rear of the printer.



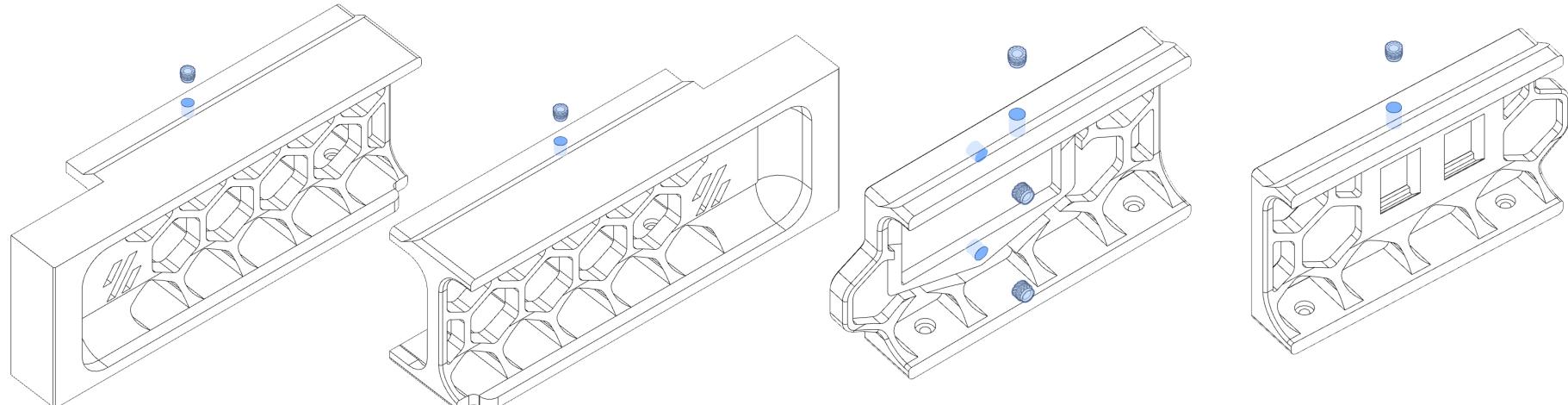
MIND THE PART ORIENTATION

The profile shown above are towards the front and rear of the printer.

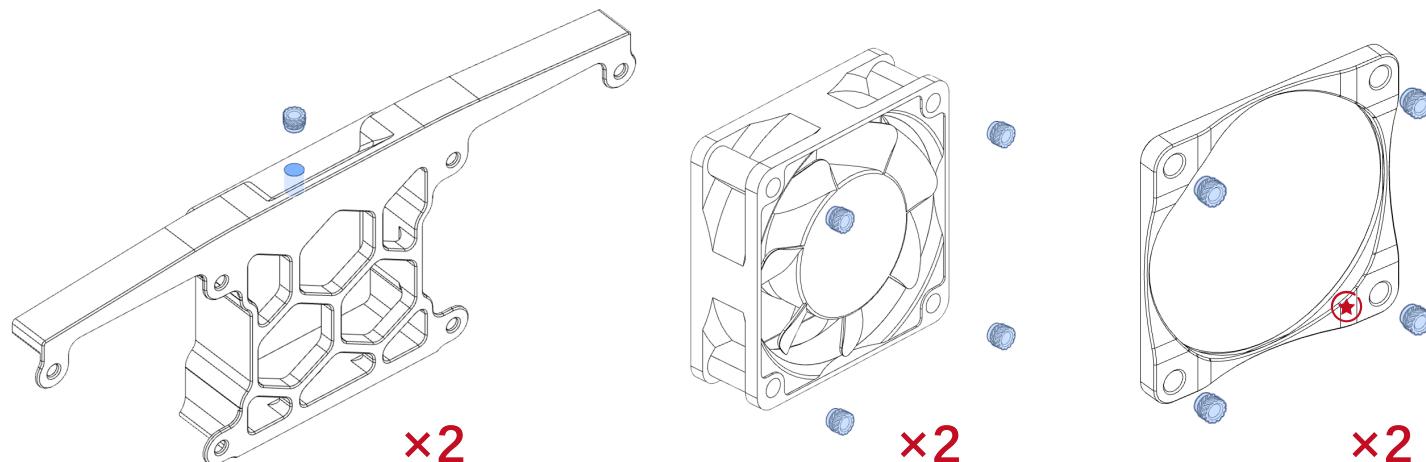
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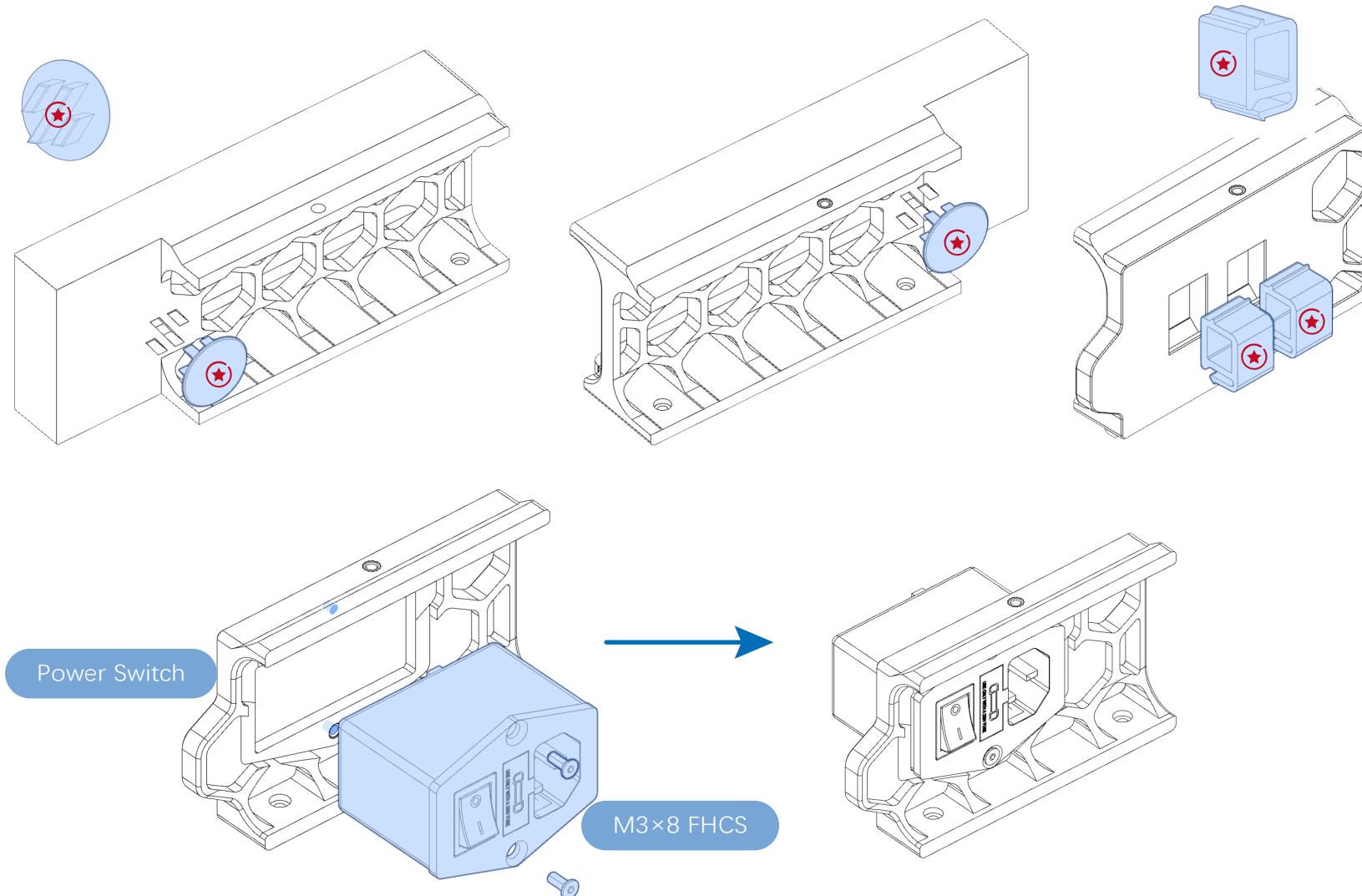


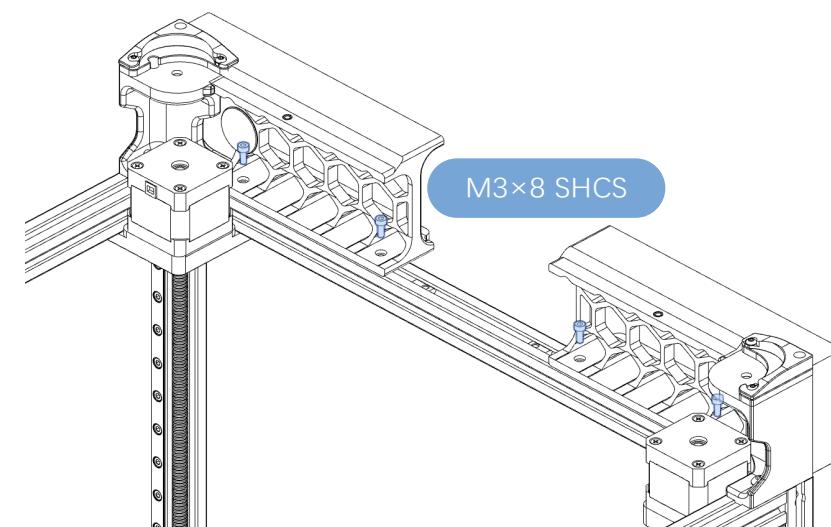
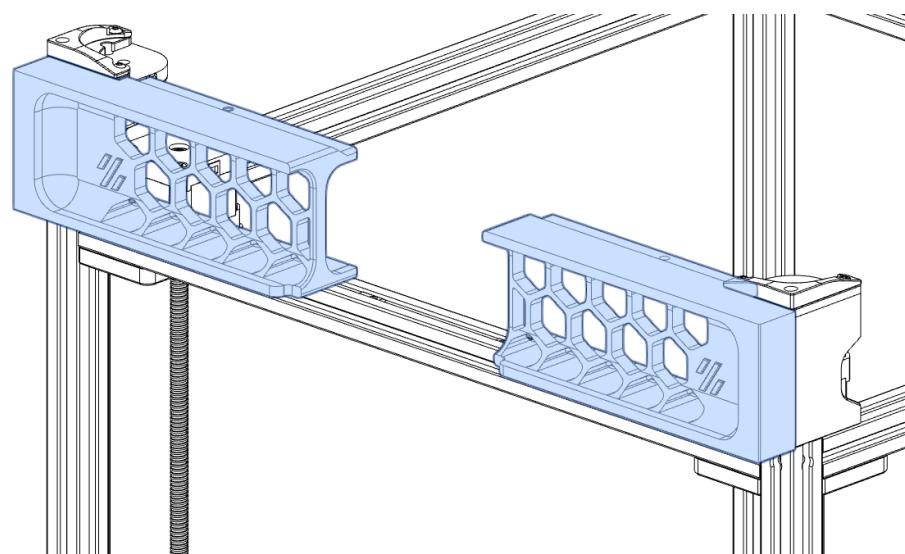
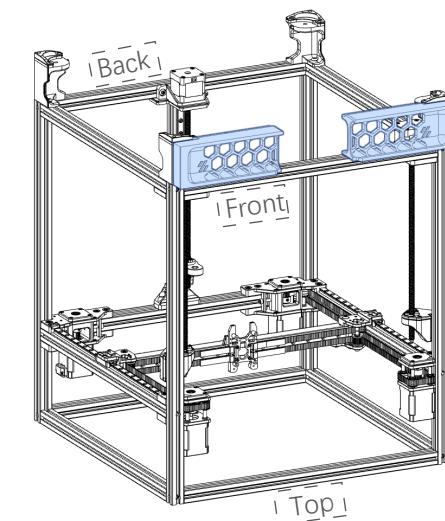
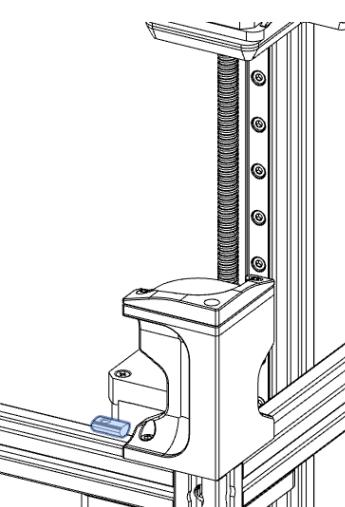
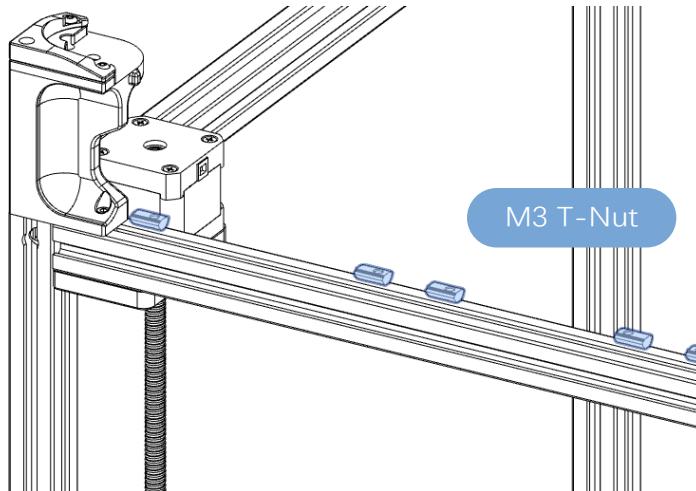
Report, Commander,
we have discovered a batch of ABS printed parts that require heat set inserts...

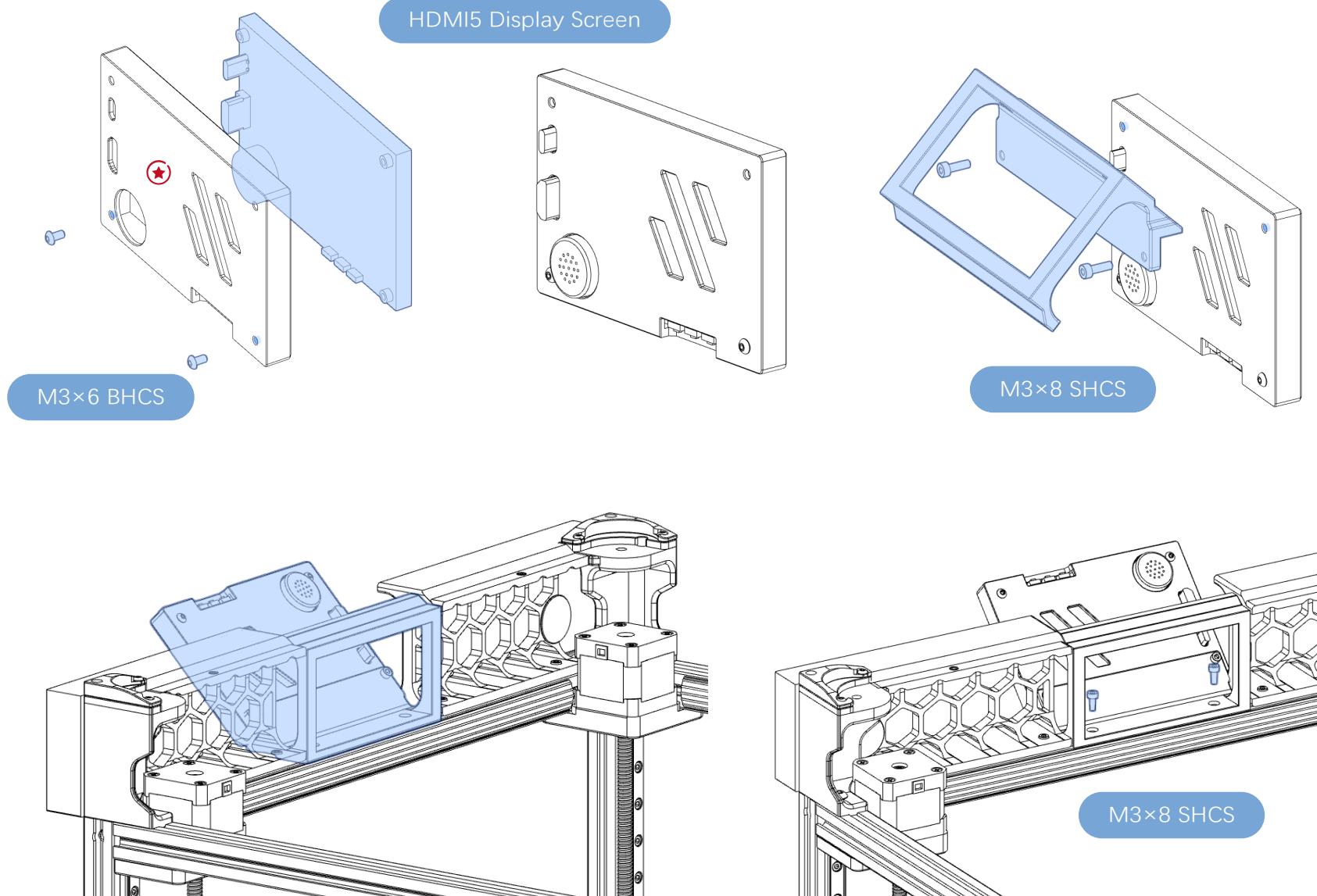


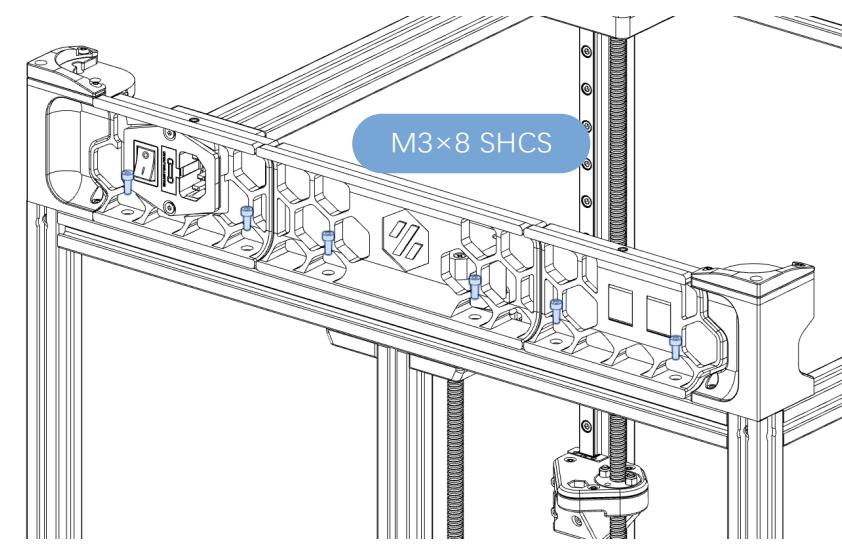
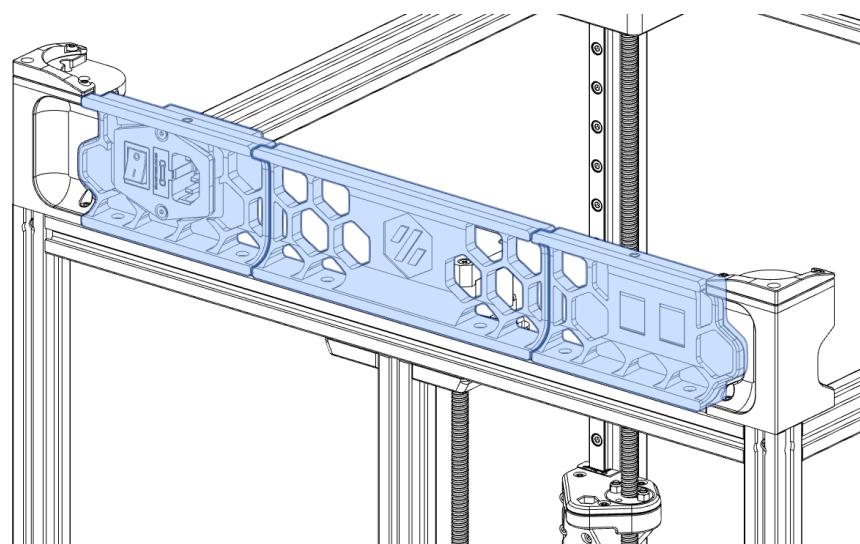
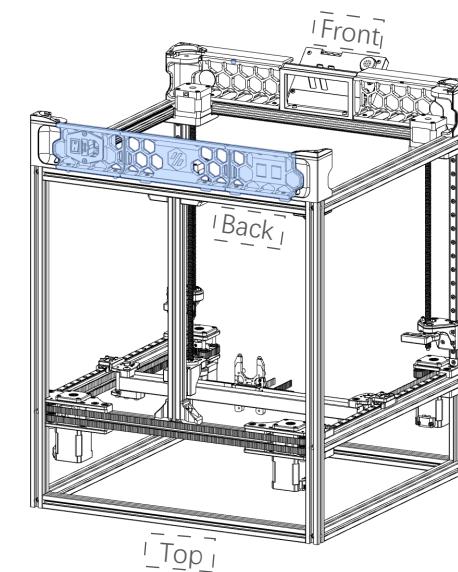
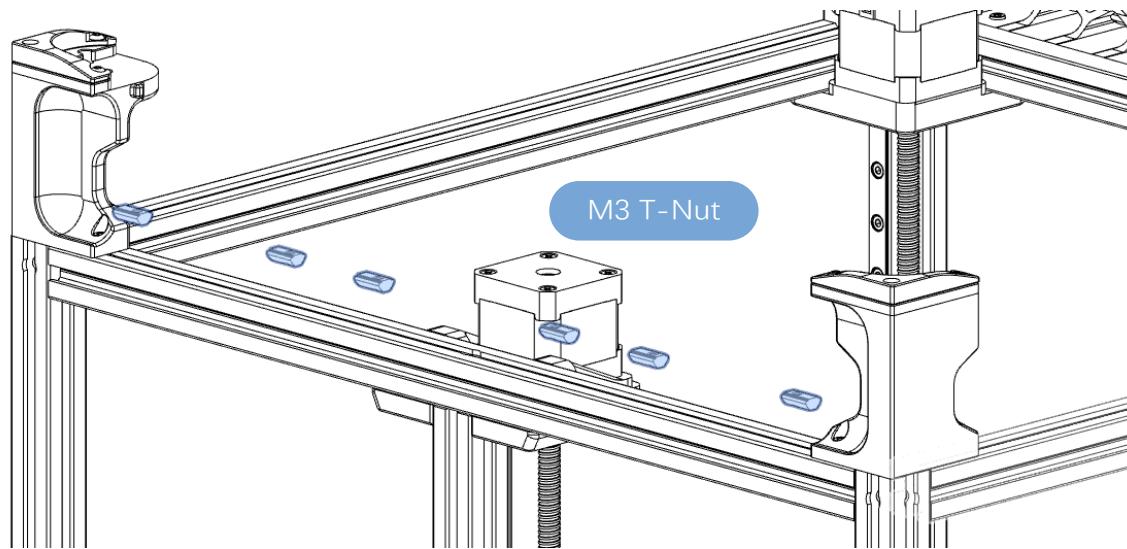
Heat Set Insert

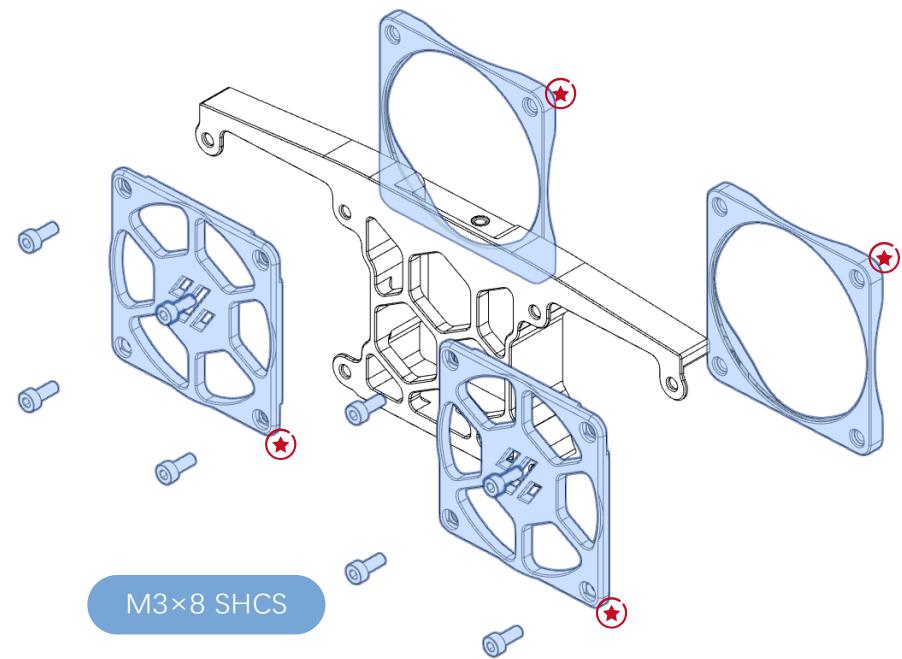
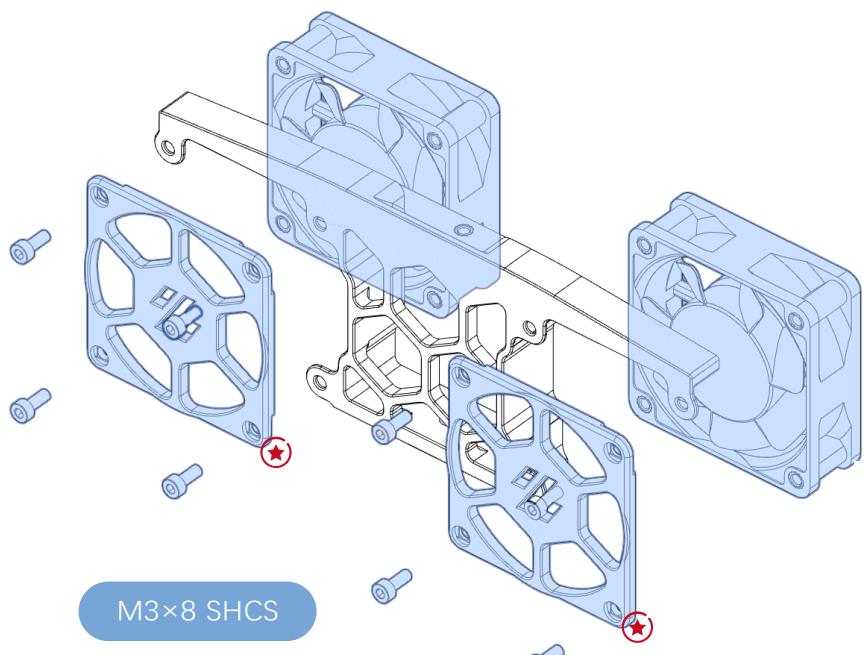


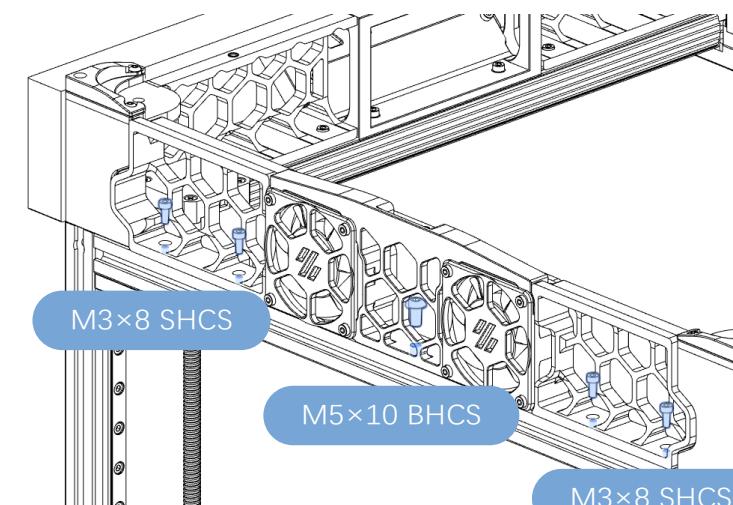
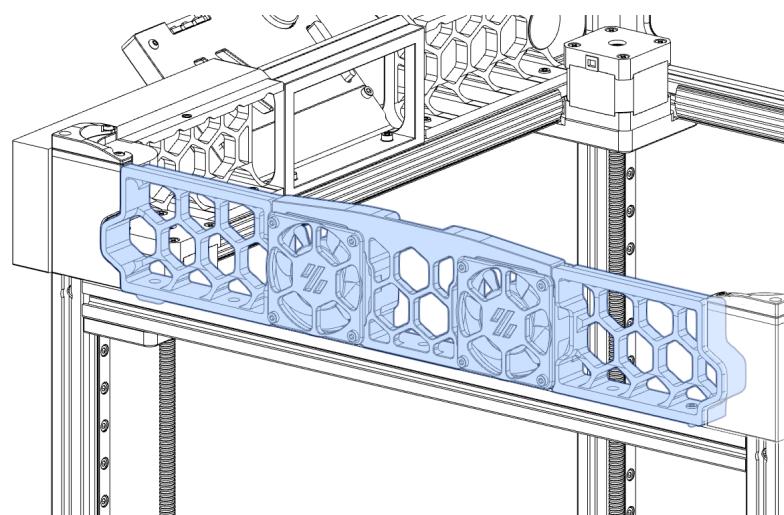
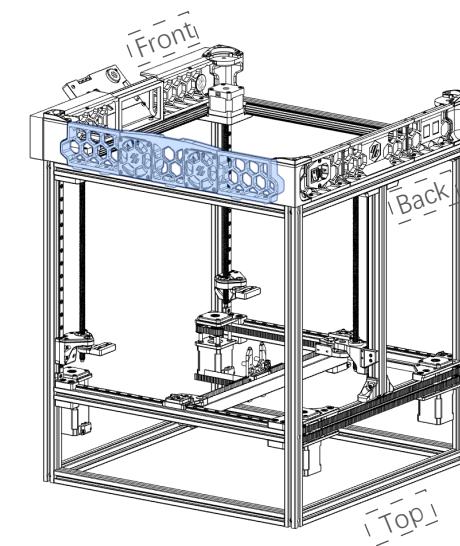
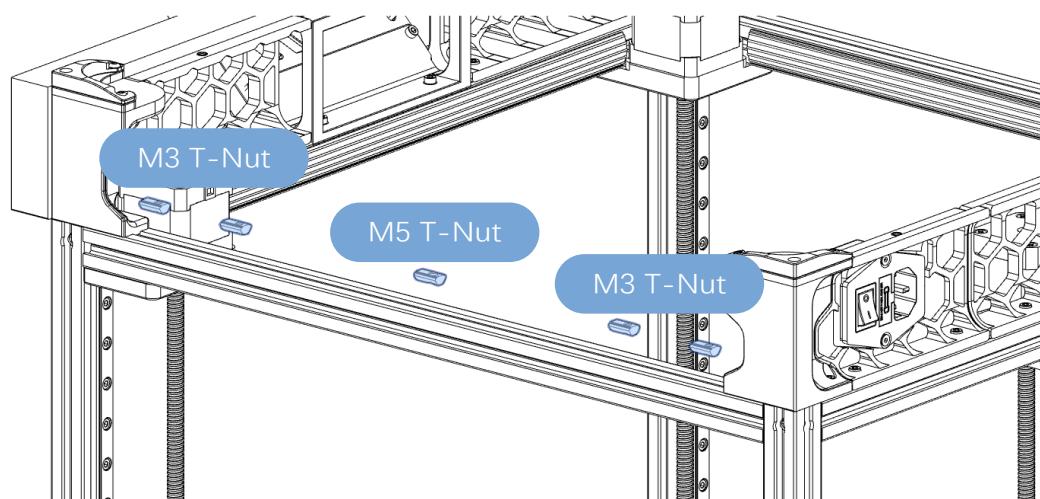


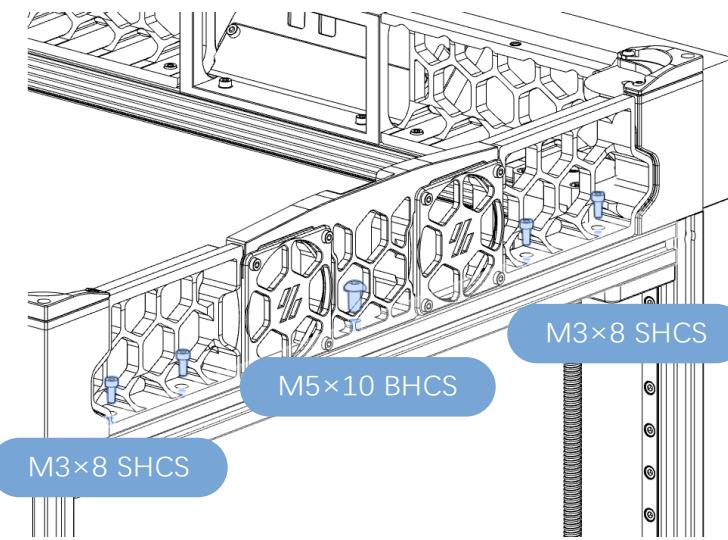
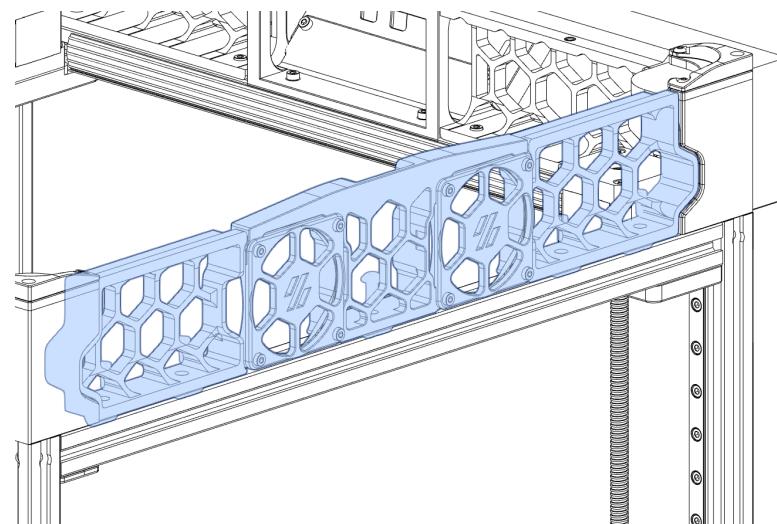
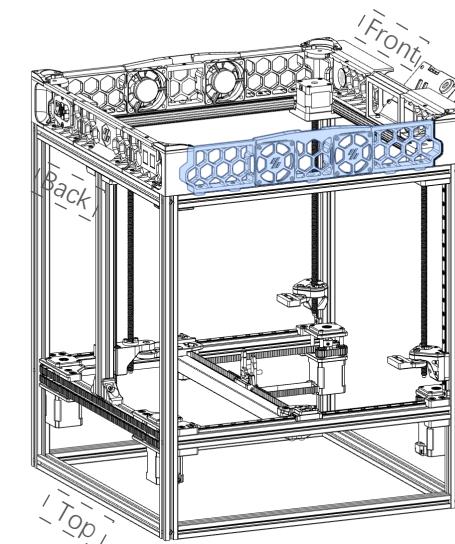
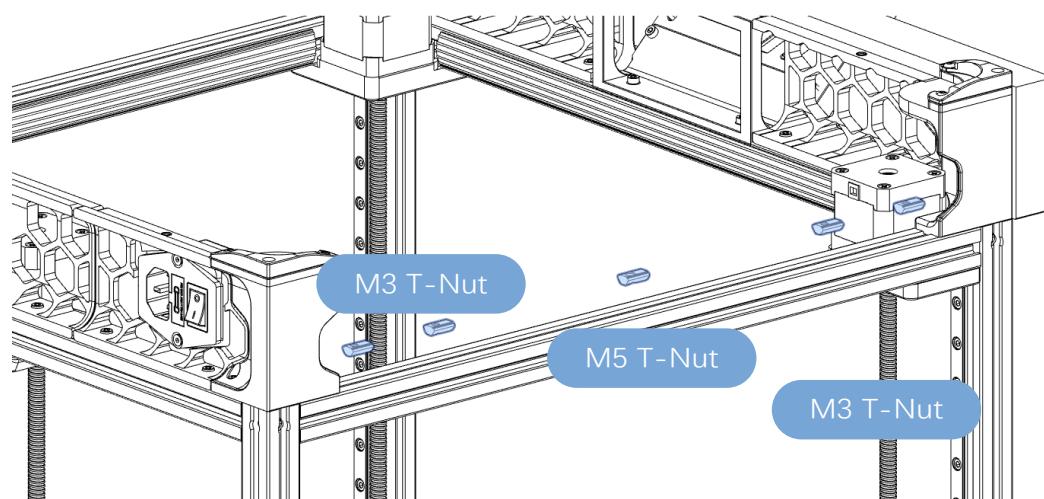


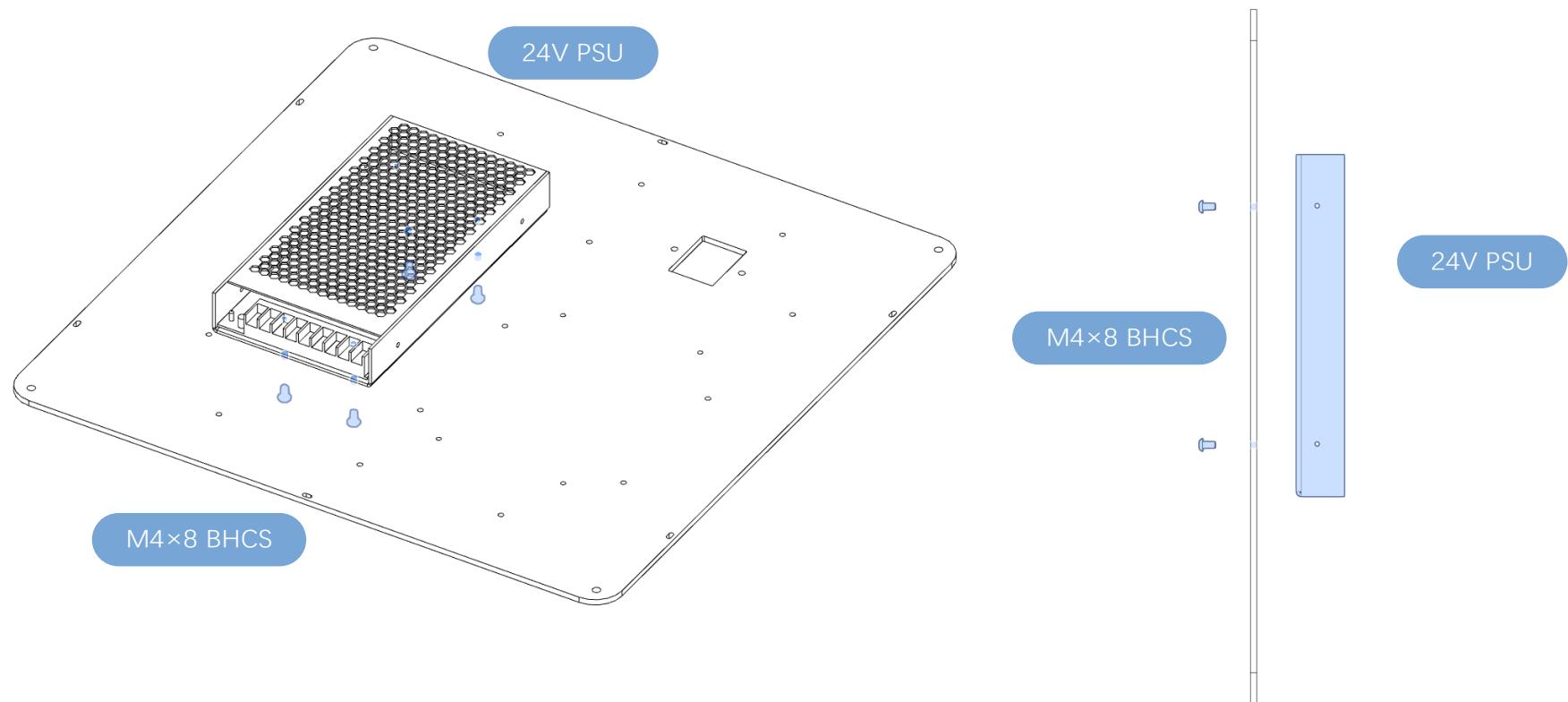






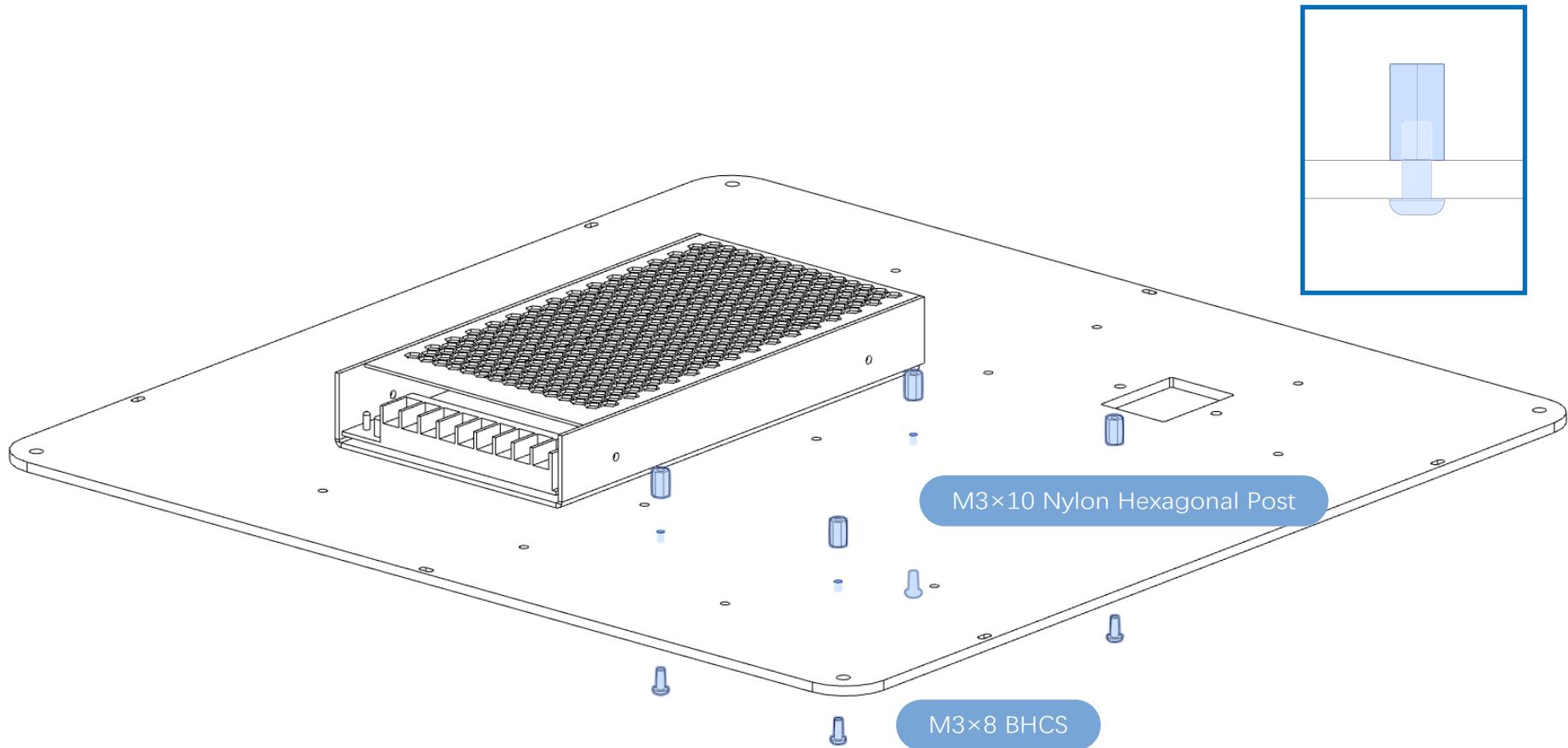


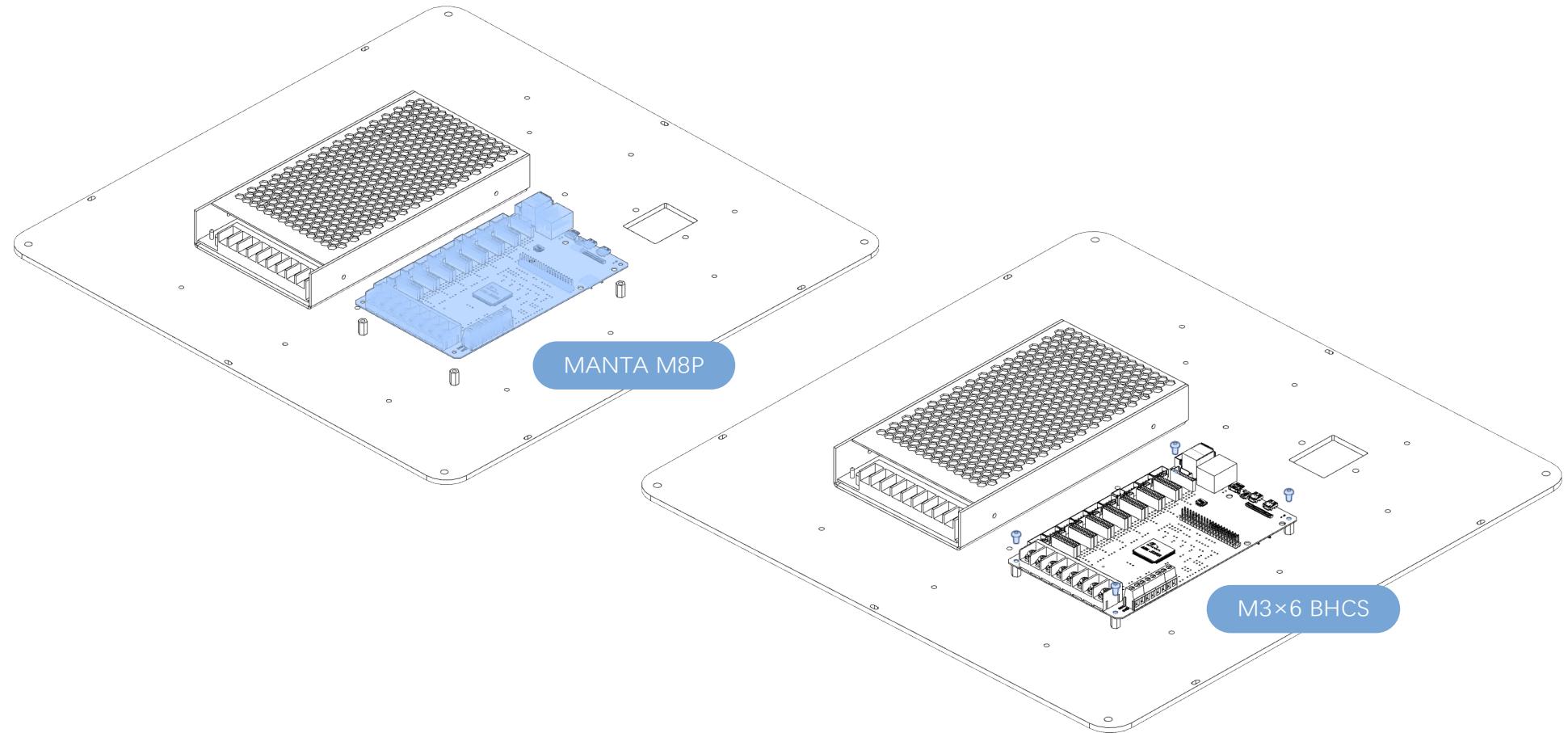


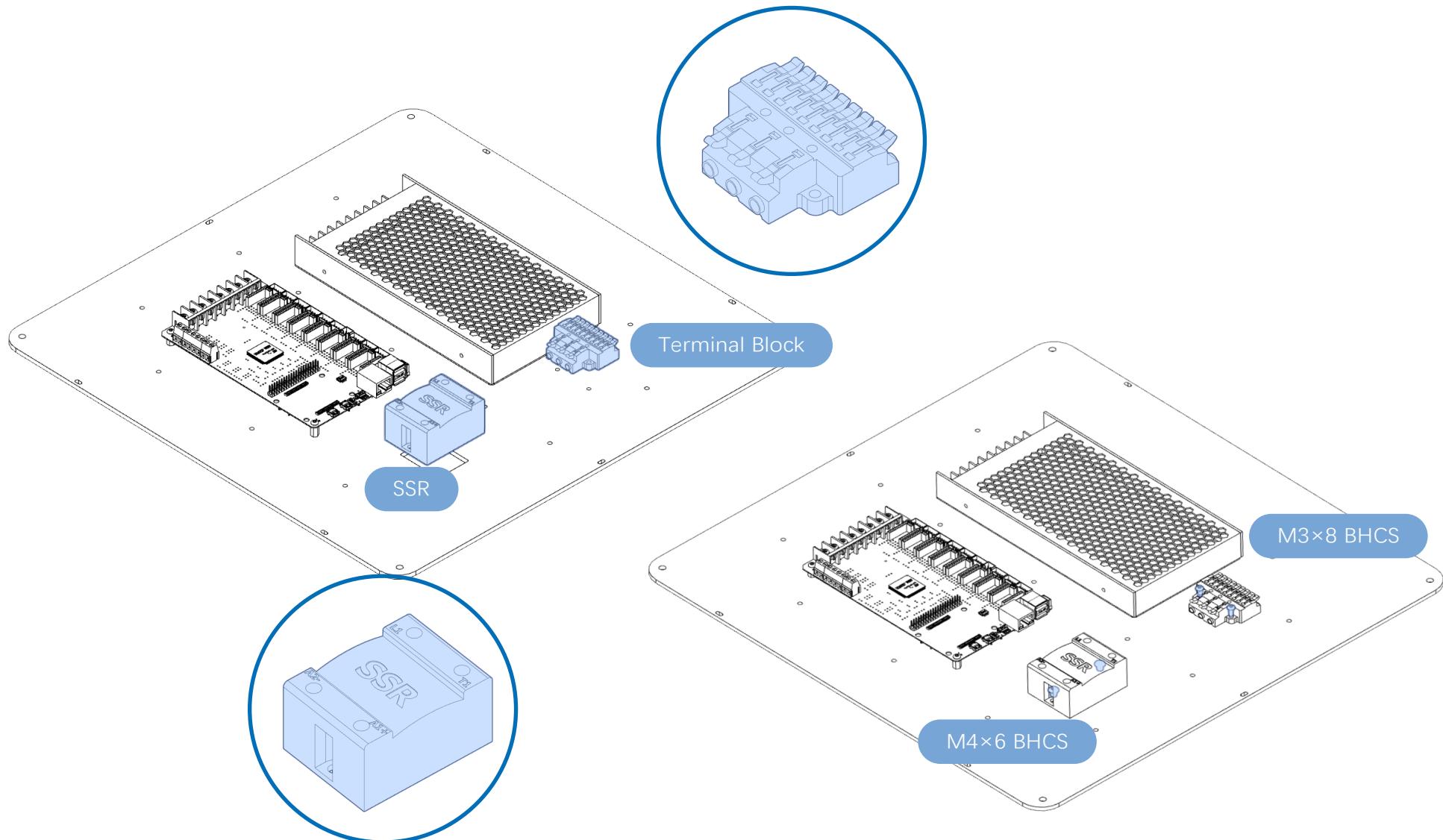


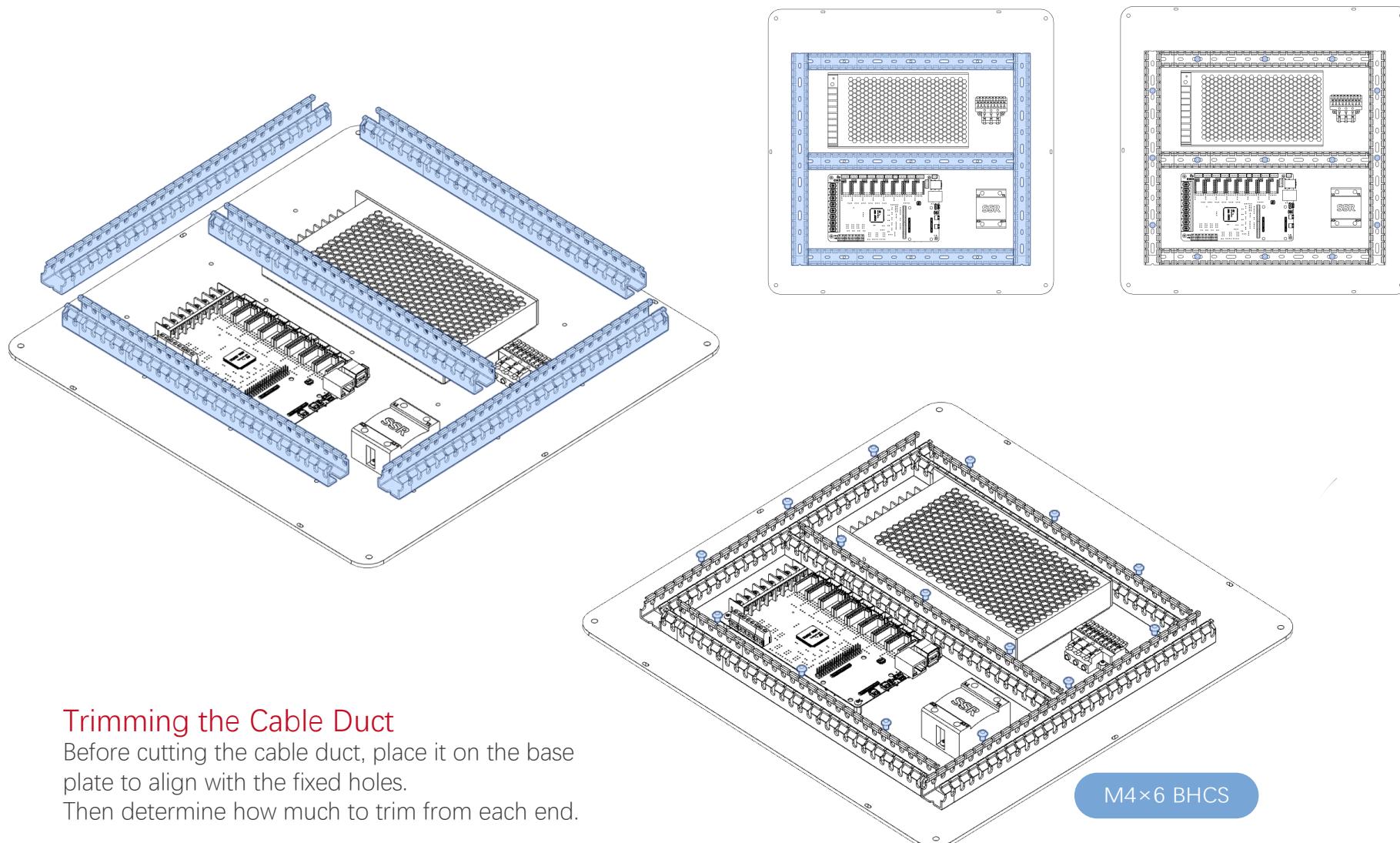
Securing the 24V PSU

Use M4×8 BHCS screws to secure the 24V PSU to the black base plate.



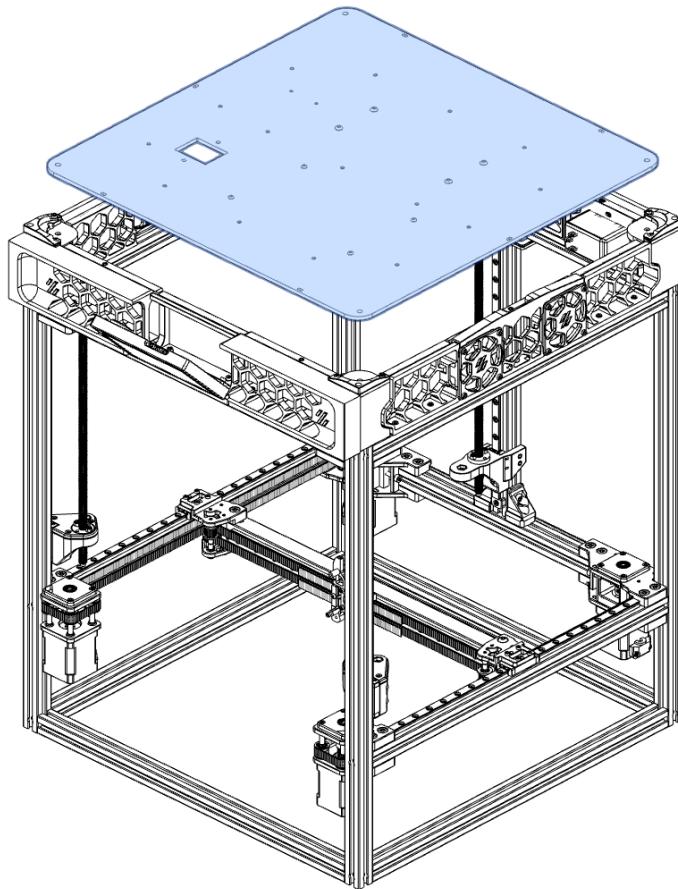




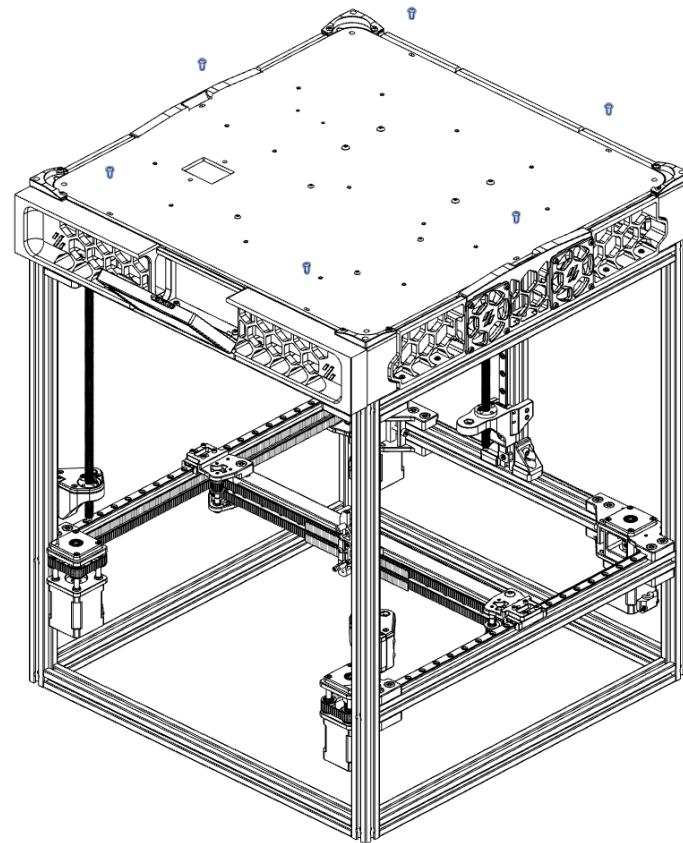


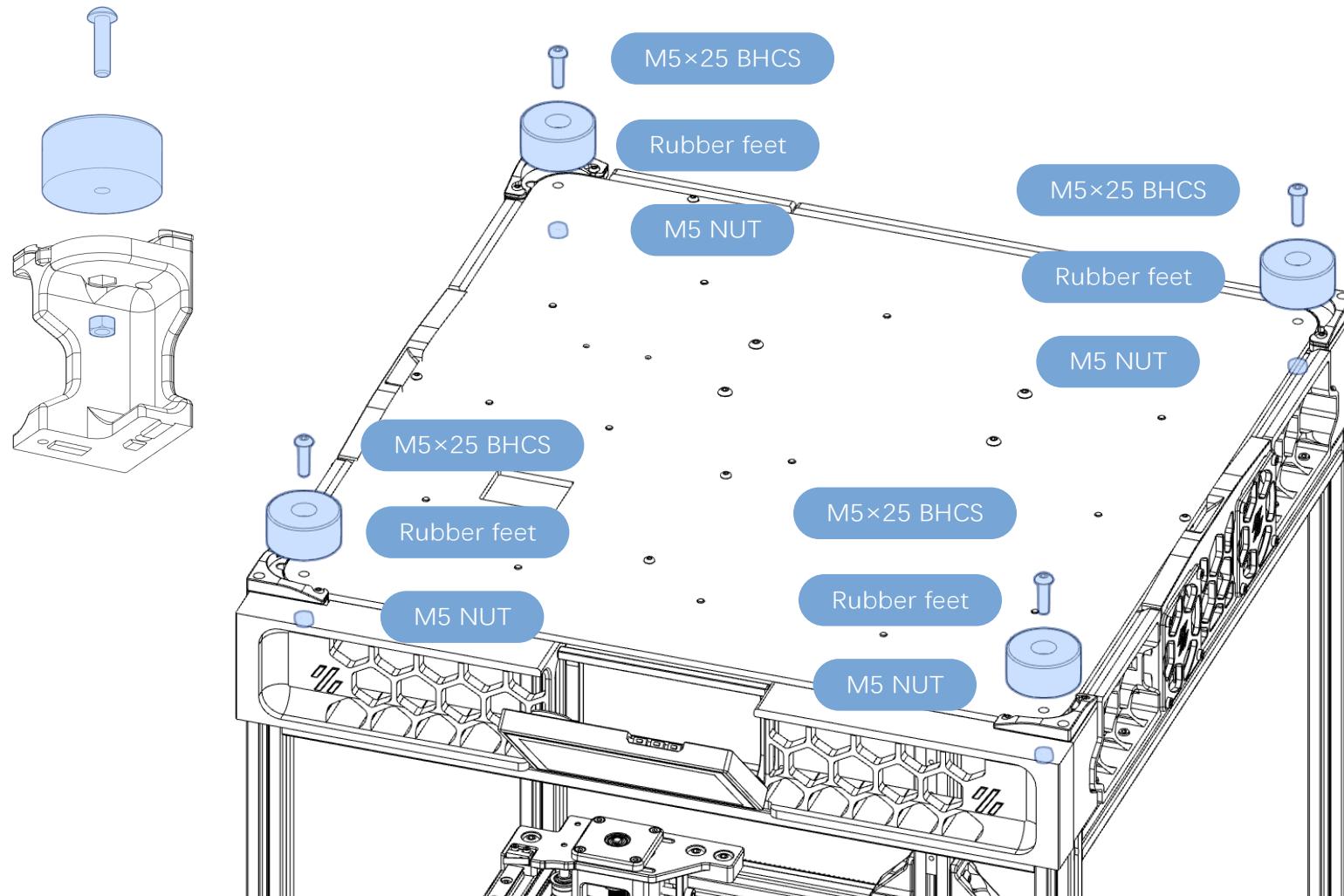
Trimming the Cable Duct

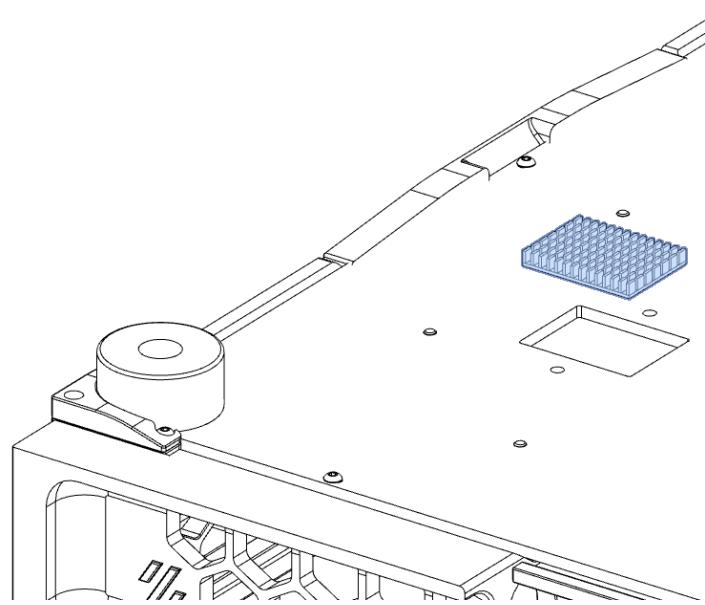
Before cutting the cable duct, place it on the base plate to align with the fixed holes.
Then determine how much to trim from each end.



M3×8 BHCS



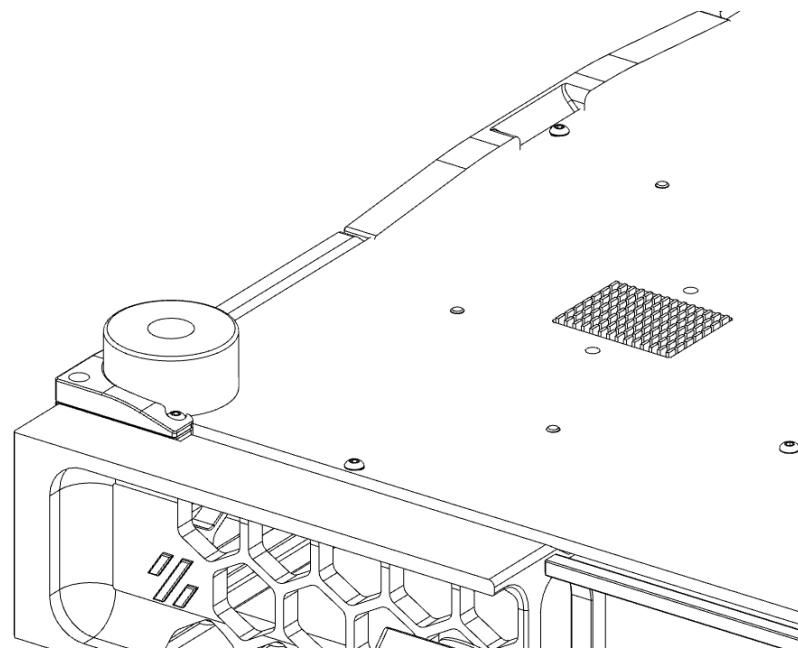




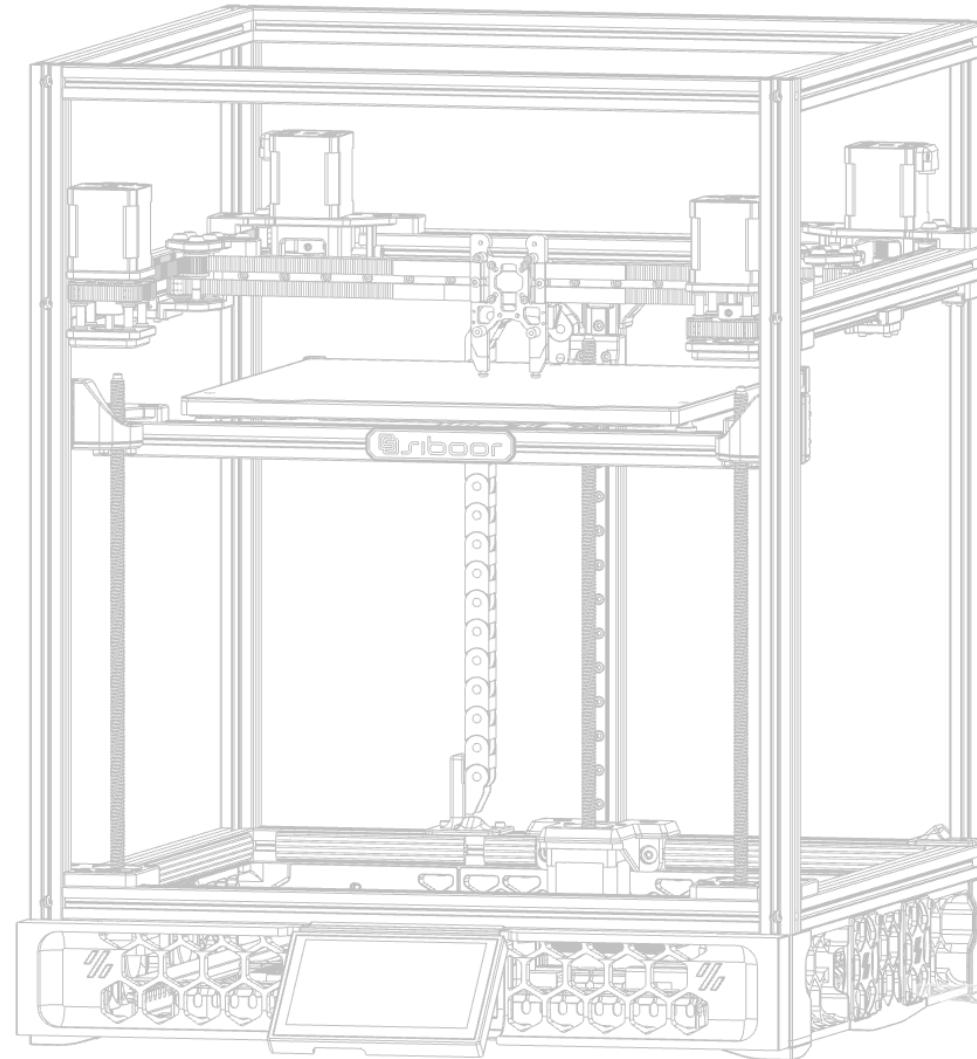
SSR heat sink

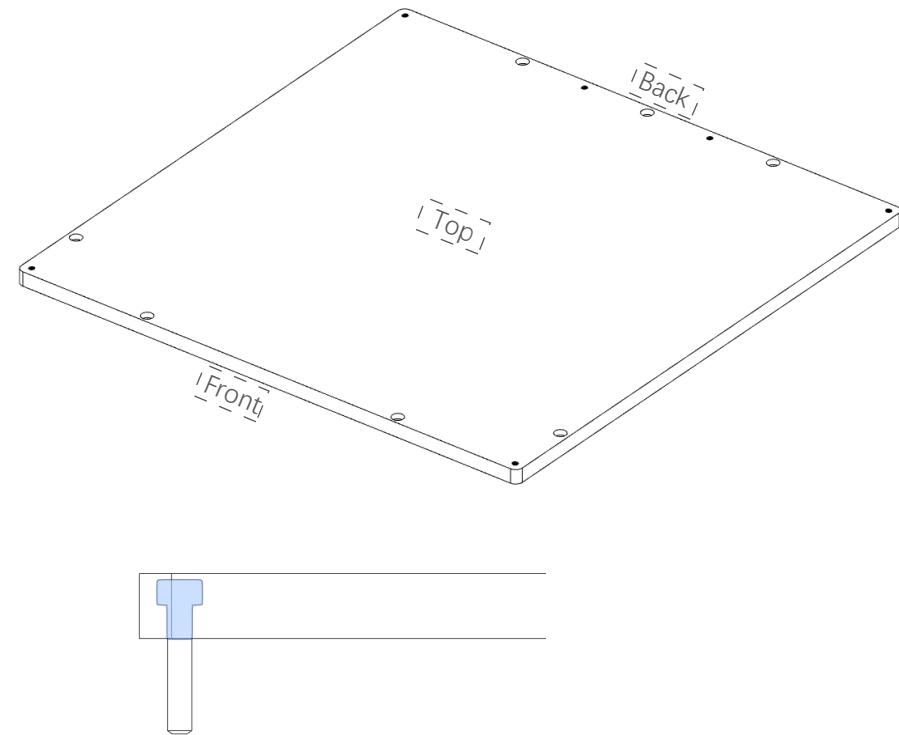
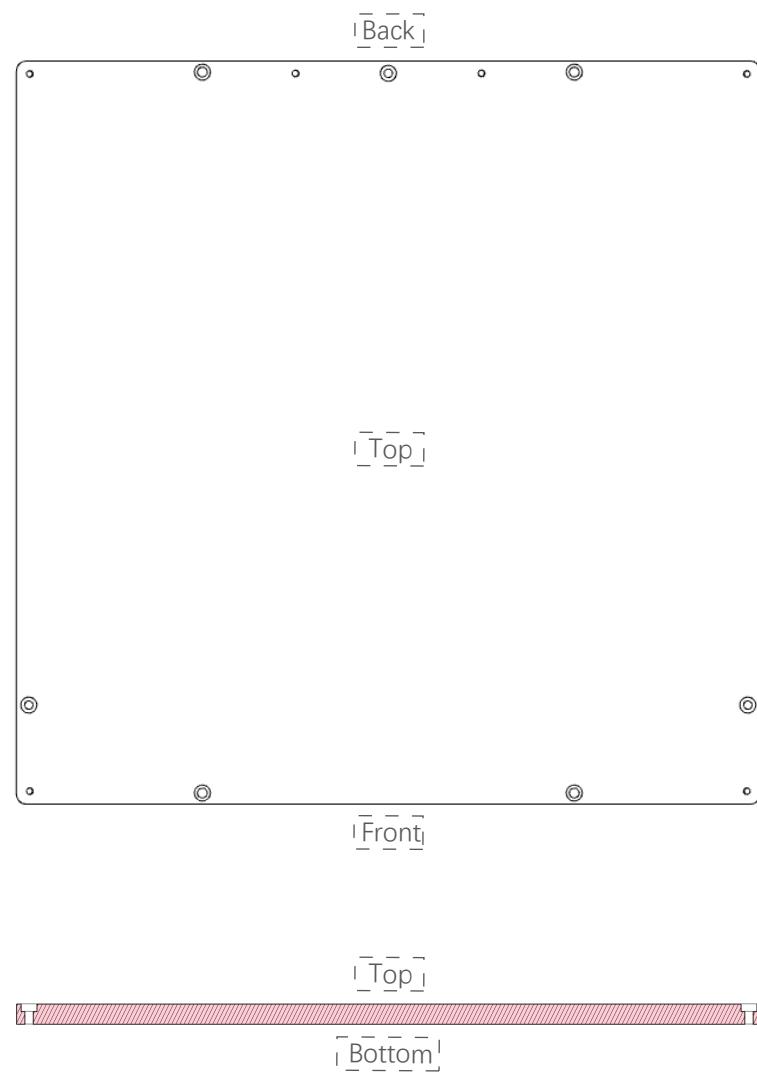
Attaching the SSR Heat Sink

Peel off the double-sided tape from the back of the SSR heat sink, then stick it onto the SSR.



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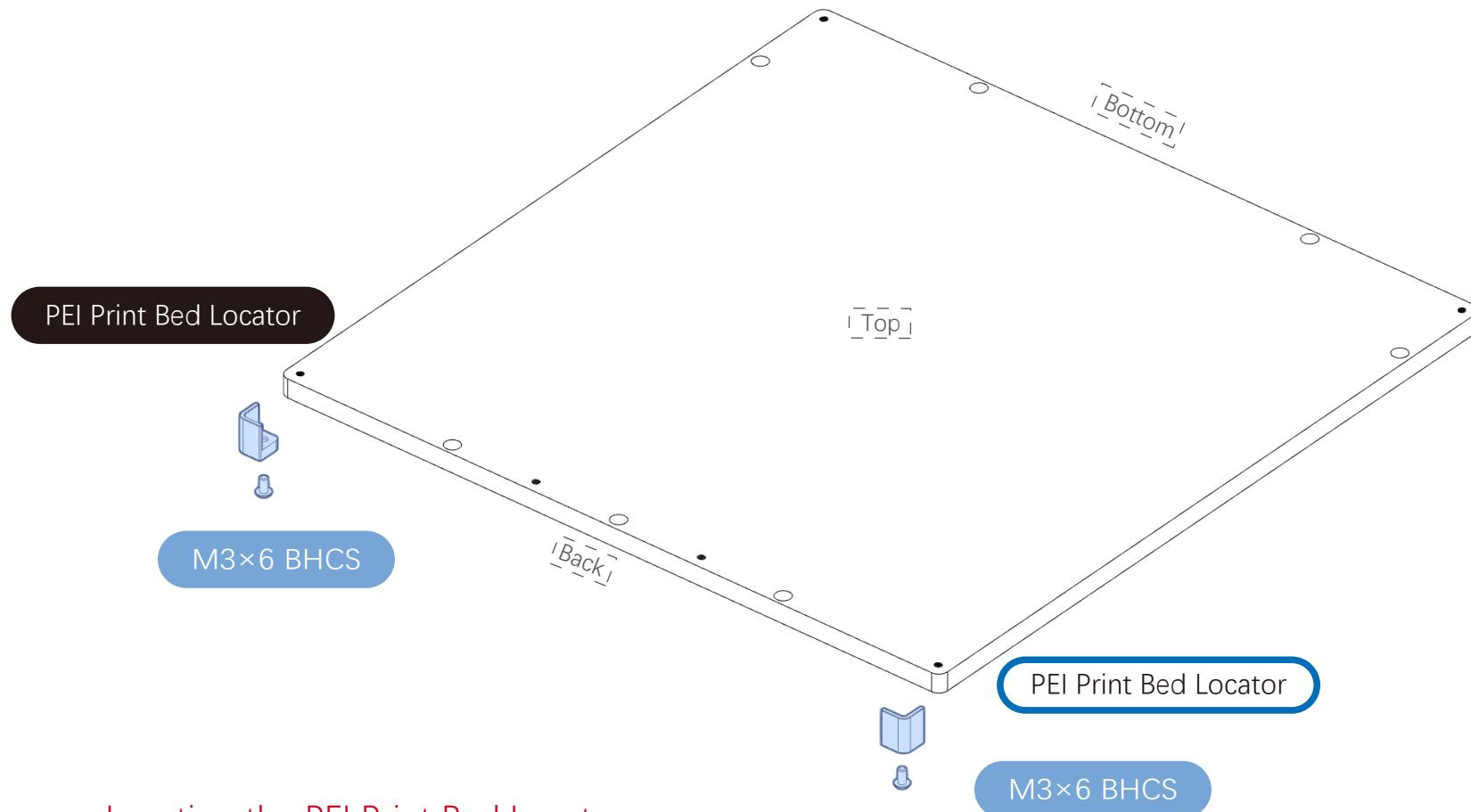




WHICH SIDE IS WHICH?

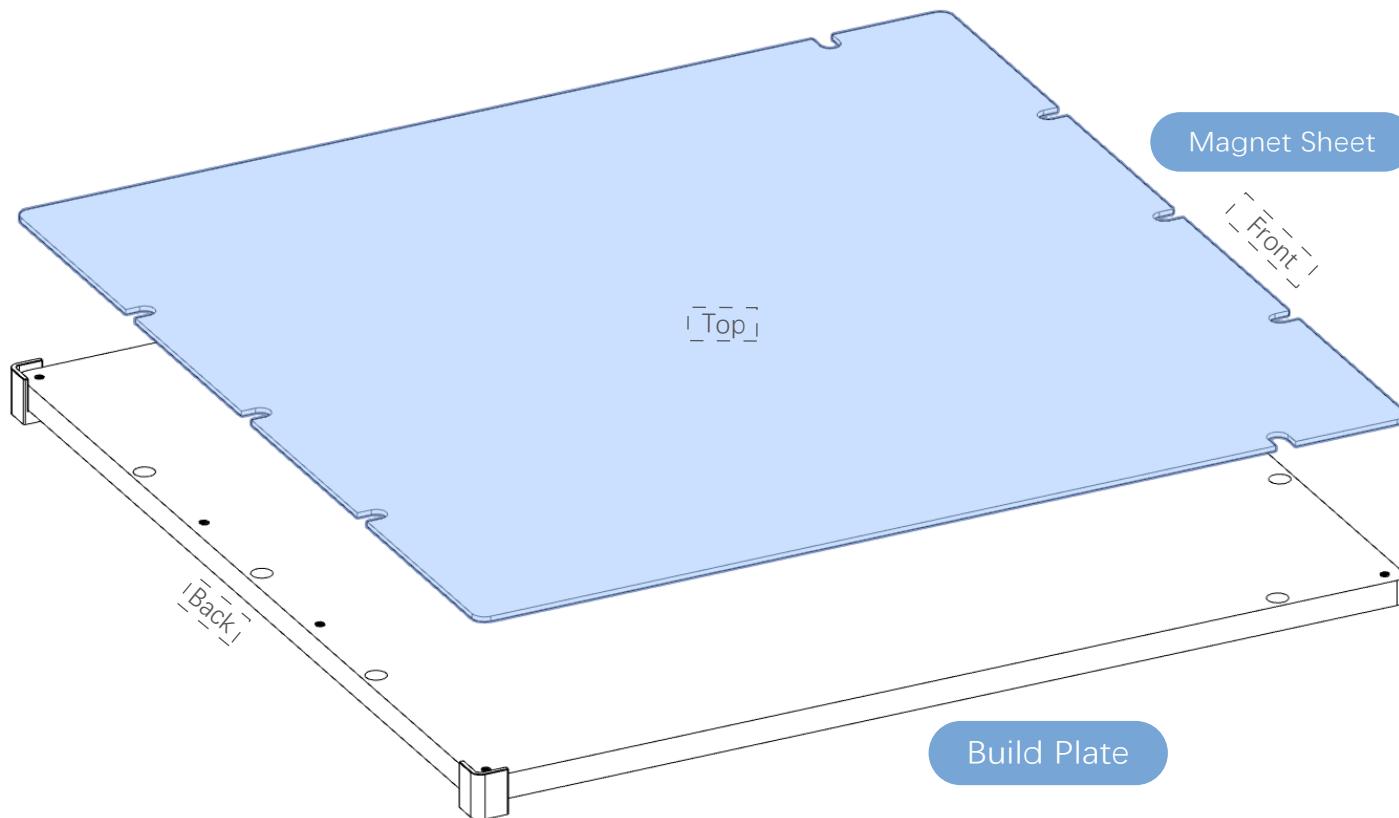
The top of the plate has mounting holes with bores that allow boltheads to sit flush/below the surface.

The plate has additional tapped holes to secure the PE connection and a thermal fuse, those are on the back side of the plate.



Locating the PEI Print Bed Locator

The PEI Print Bed Locator is in the CNC AWD box, as mentioned on page 72.



<https://voron.link/rm6tpld>

MAGNET APPLICATION

Clean the plate with isopropyl alcohol or similar cleaner prior to applying the magnet.

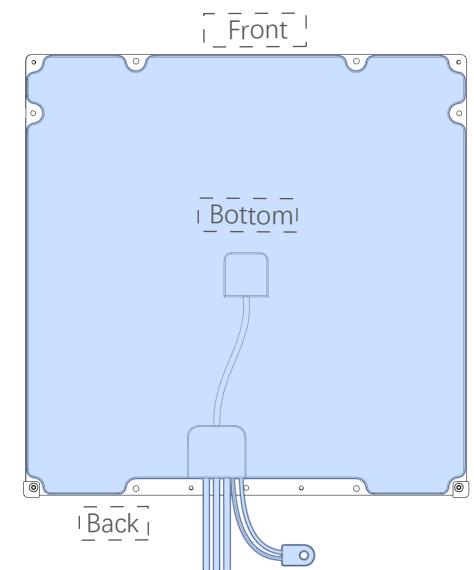
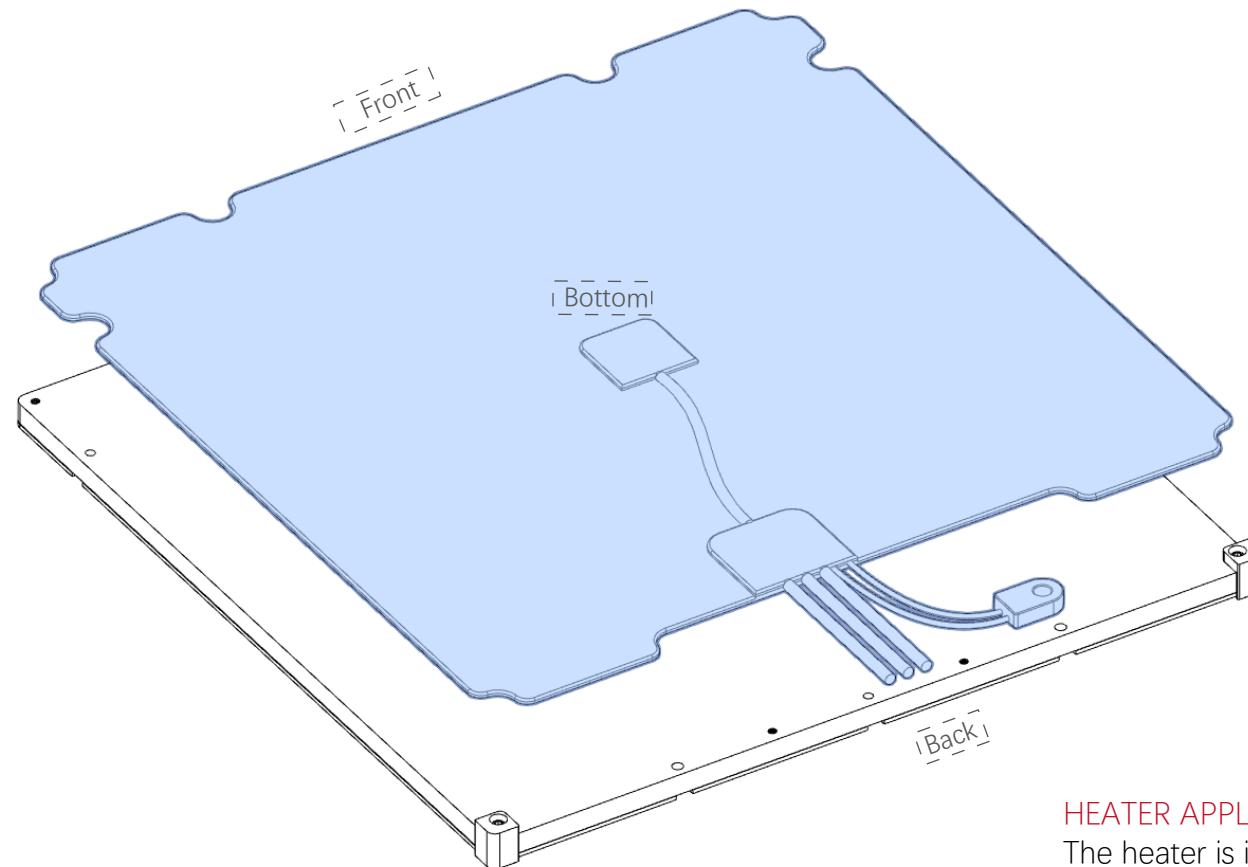
Use the edge of a plastic object or a small roller to firmly press the magnet on the plate to get a good bond.

If you have never done this before we recommend you watch the linked guide.



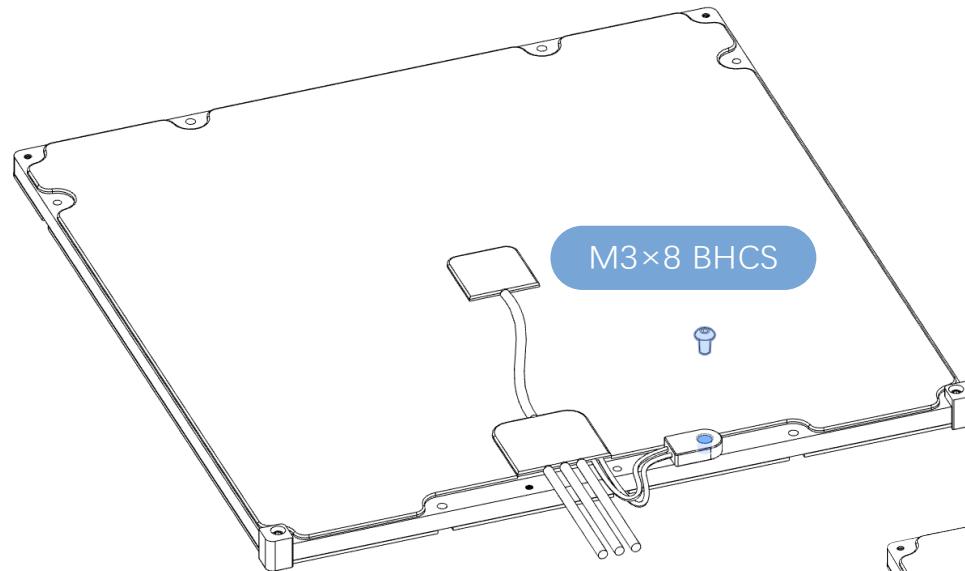
Checking Specifications Before Installing the Bed Heater

Before installing the Bed Heater, be sure to check the specification information on the surface silkscreen to ensure the voltage matches the power supply voltage in your area!



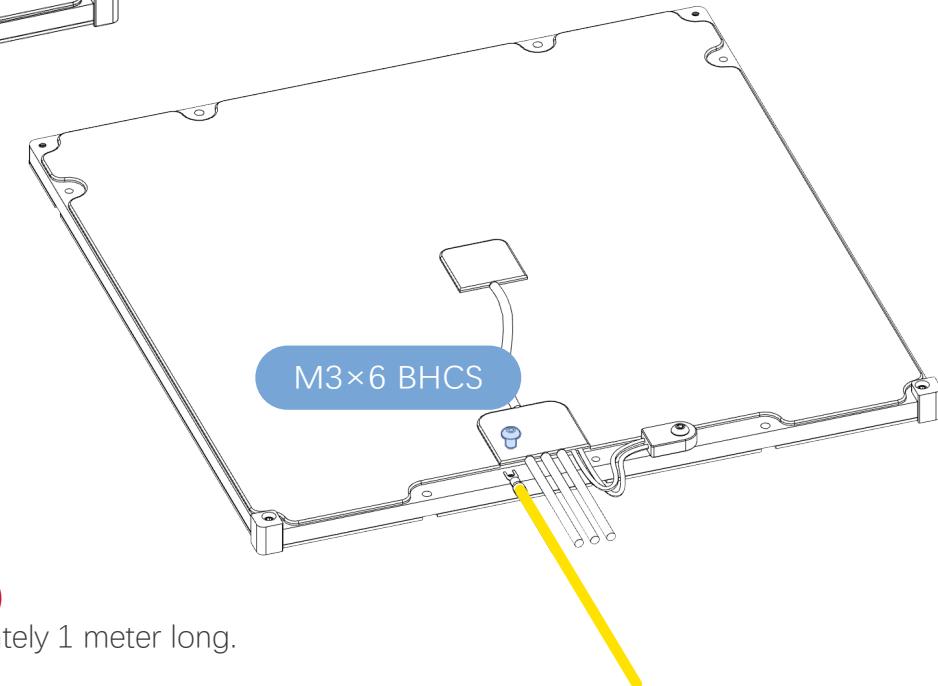
HEATER APPLICATION

The heater is installed in the same fashion as the magnet. Centre it on the underside of the build plate and make sure to firmly press it on the build plate.



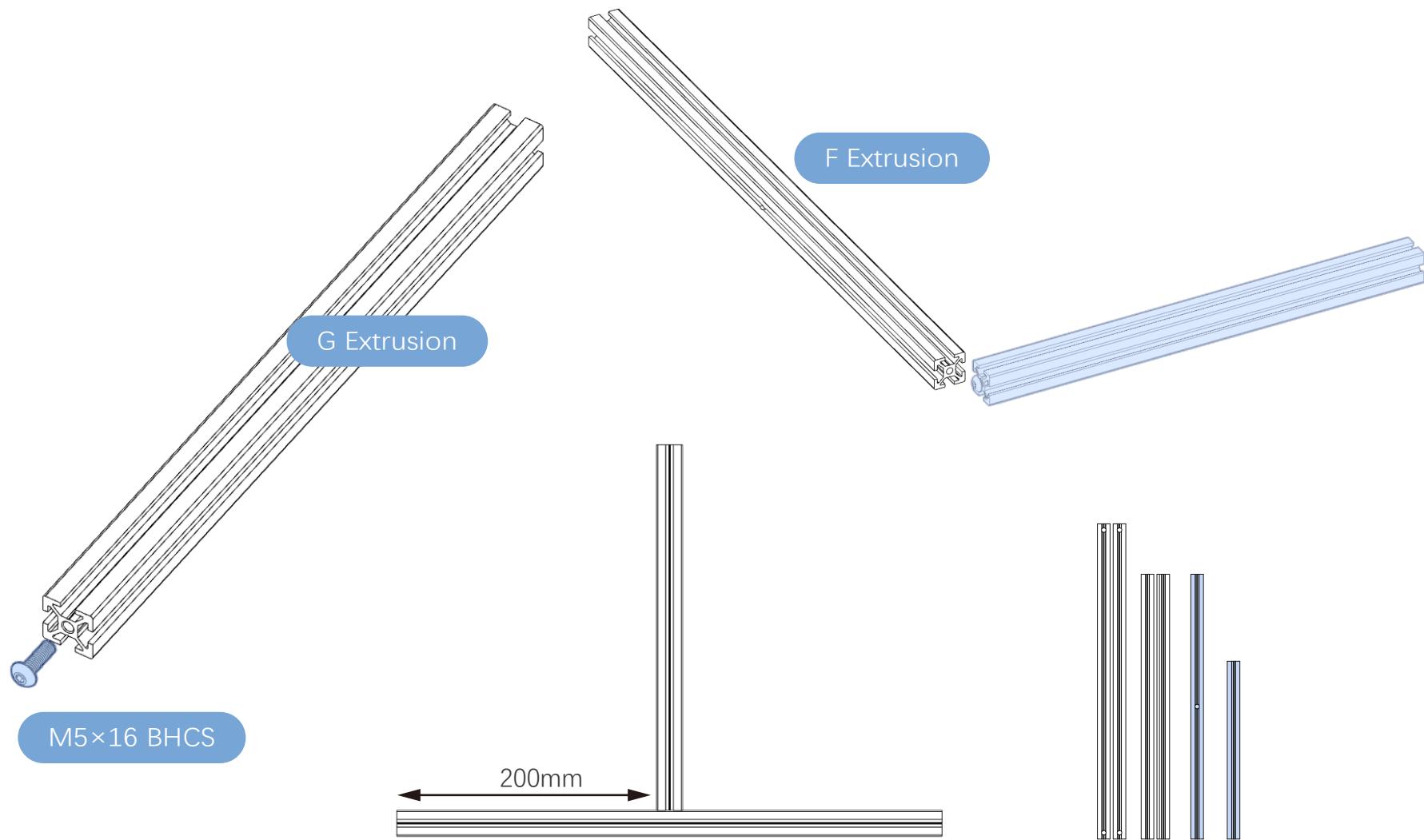
THERMAL FUSE

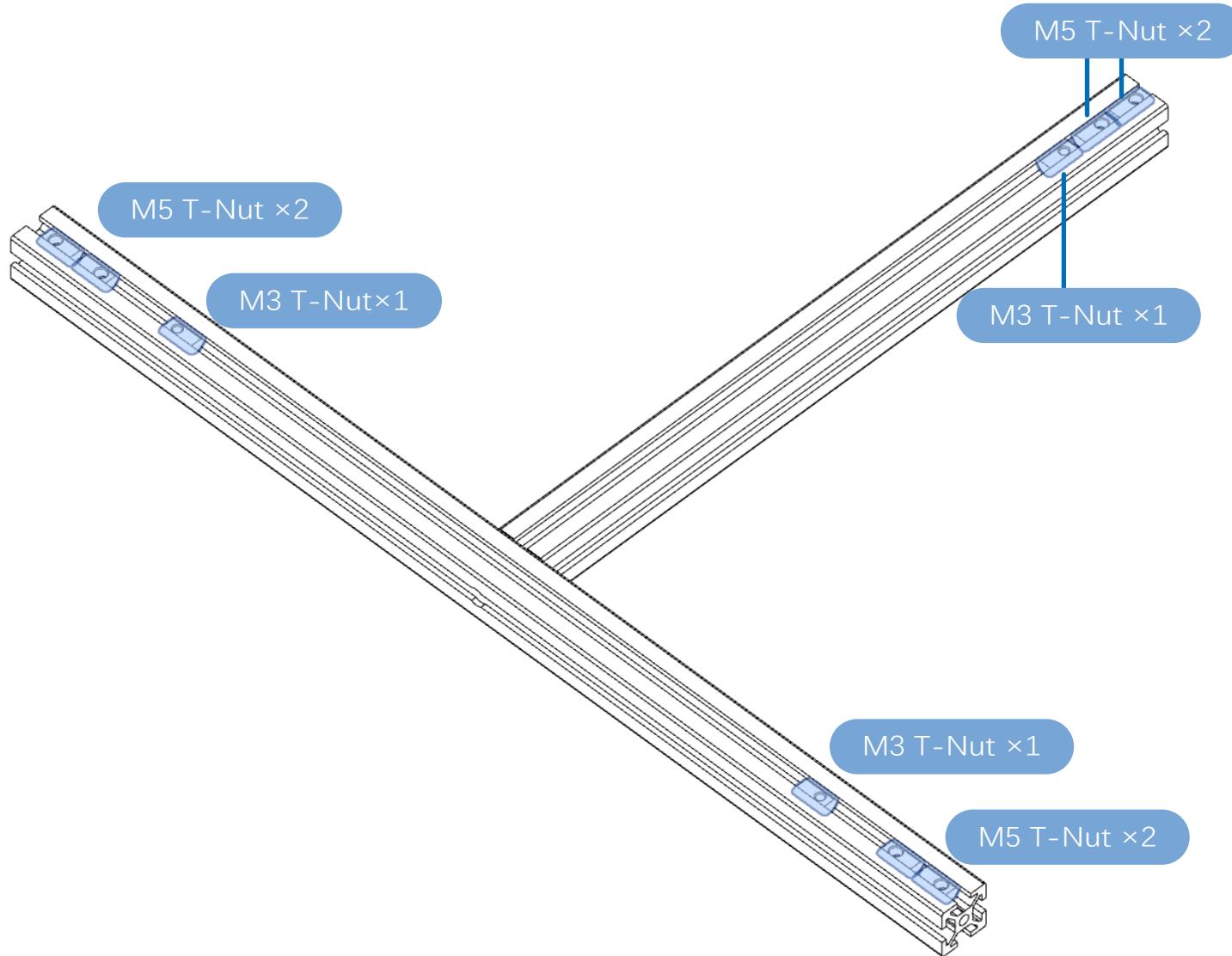
While not required to operate the printer, a thermal fuse attached to the build plate adds an additional layer of protection against potentially dangerous malfunctions.

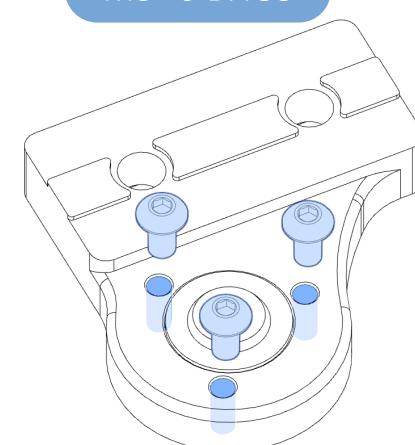
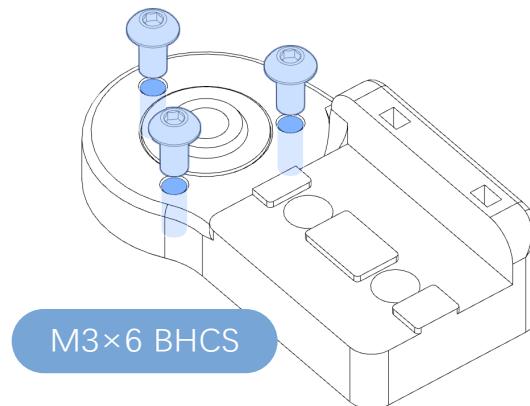
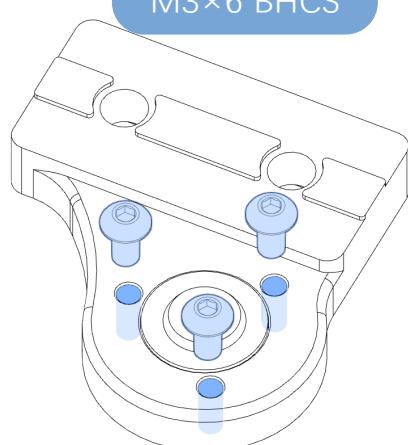
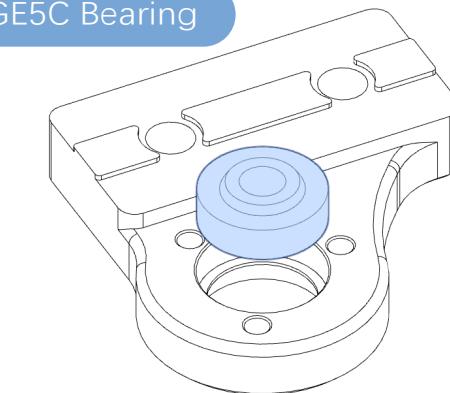


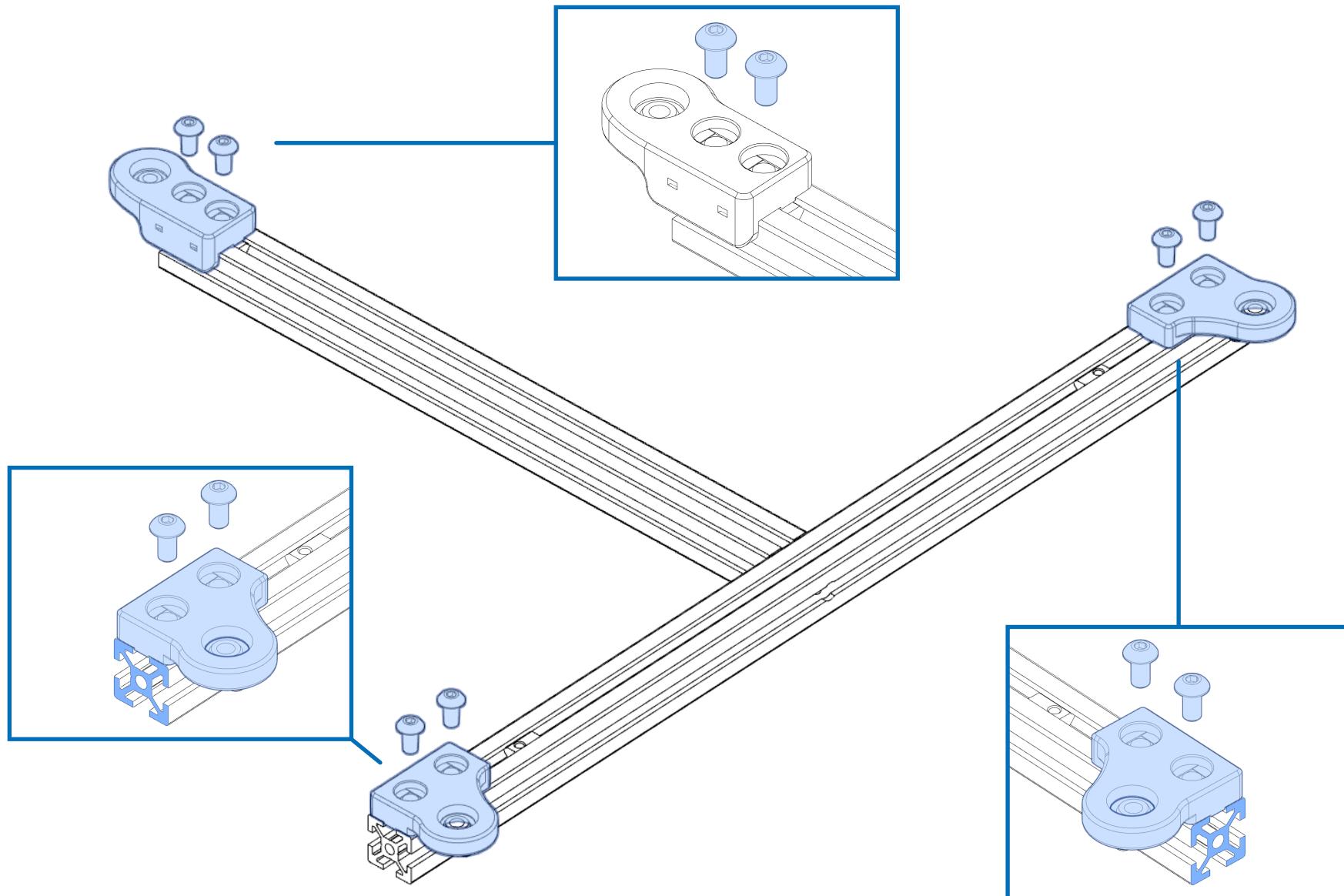
PROTECTIVE EARTH (PE)

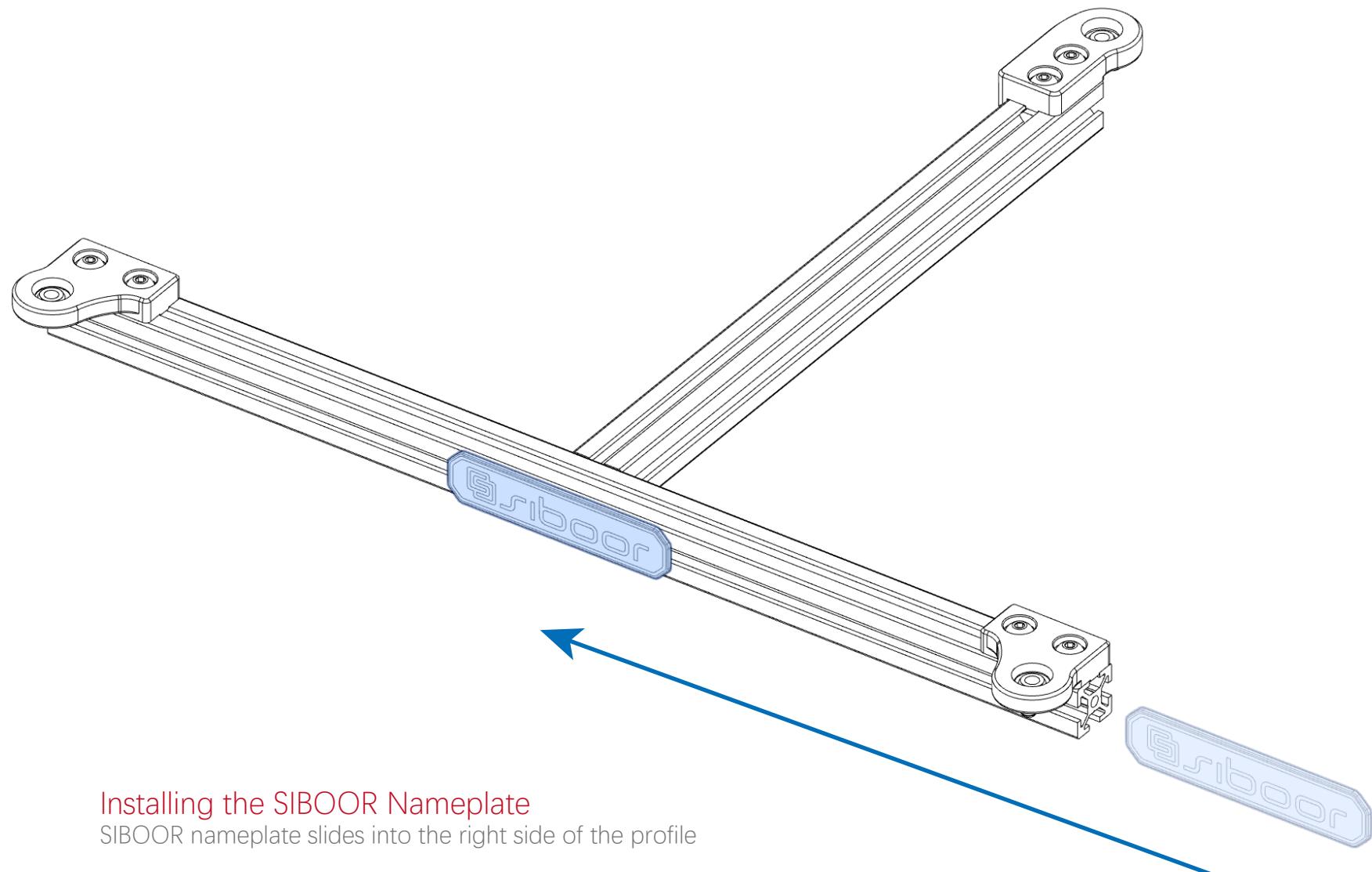
This is a yellow lead approximately 1 meter long.
Please find it in the KIT.





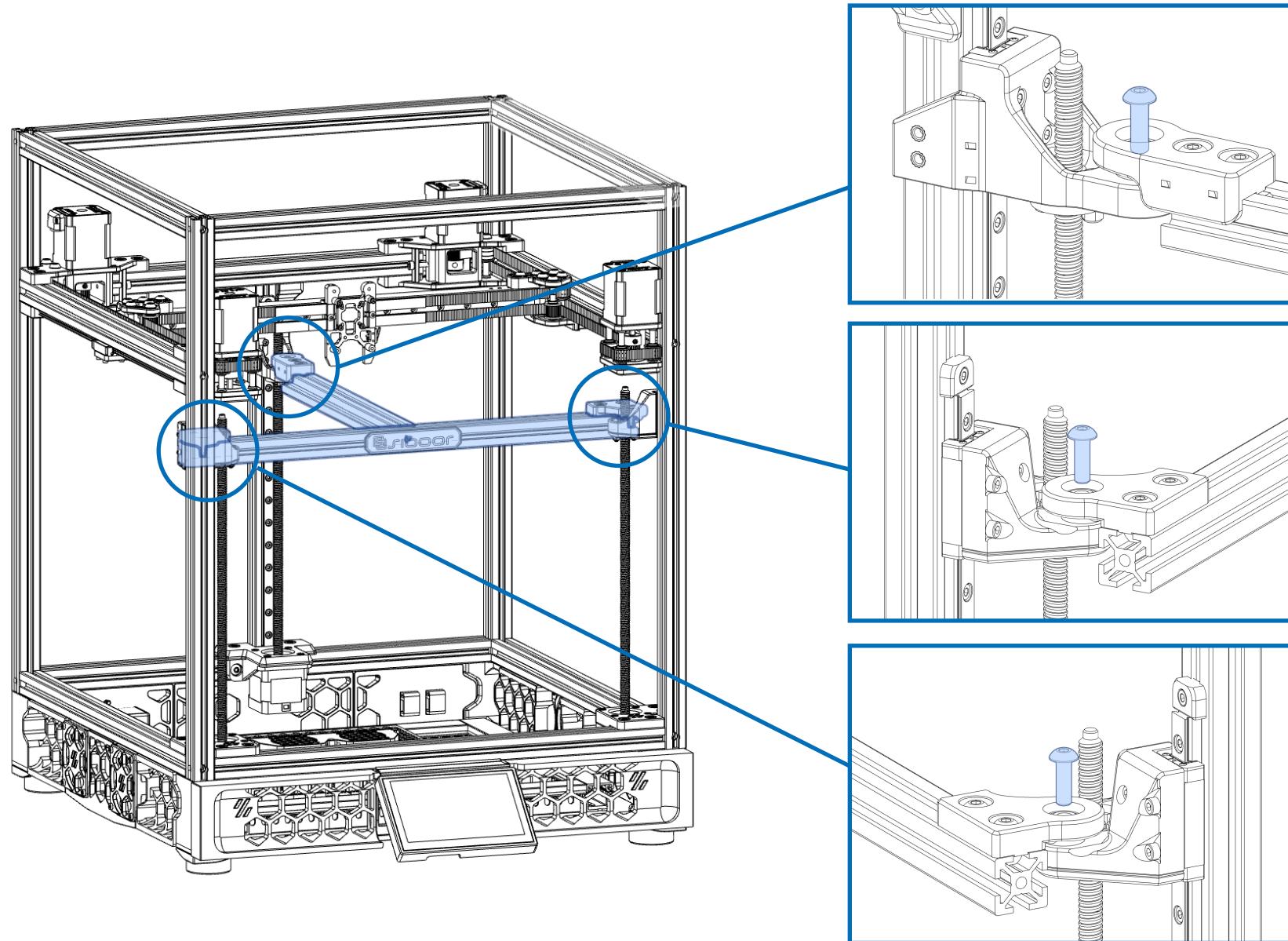


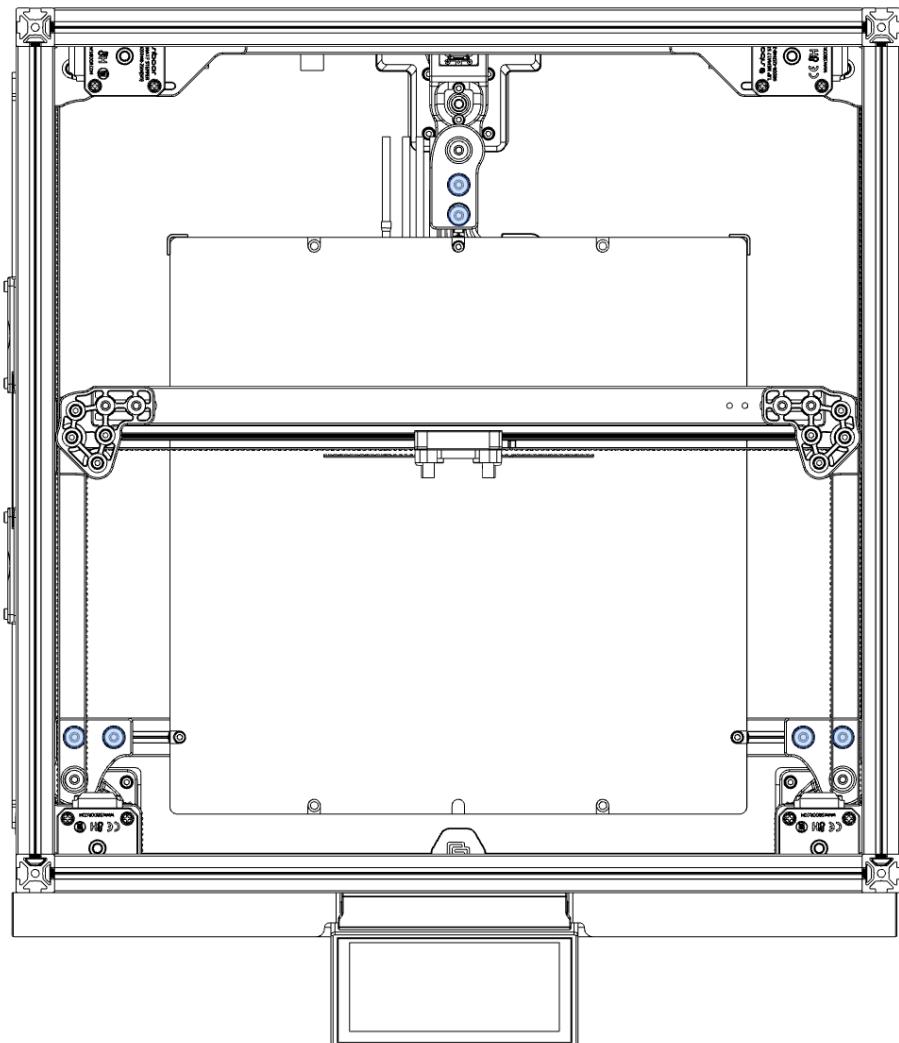




Installing the SIBOOR Nameplate

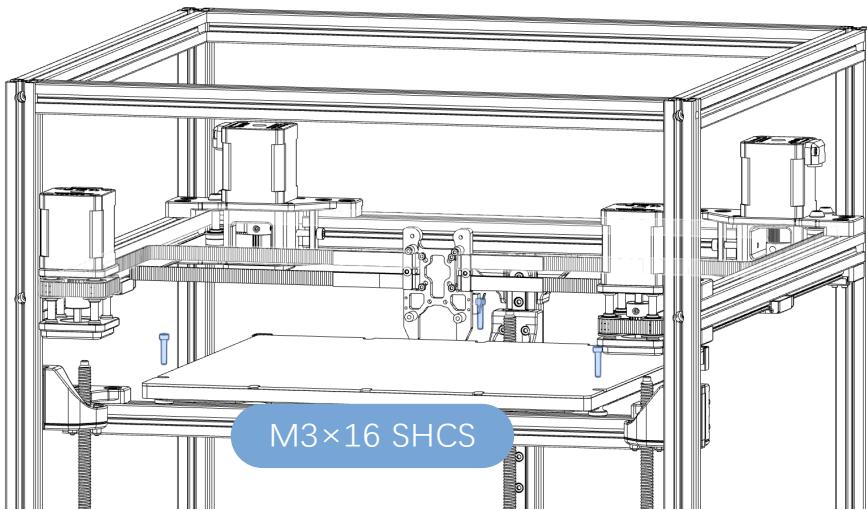
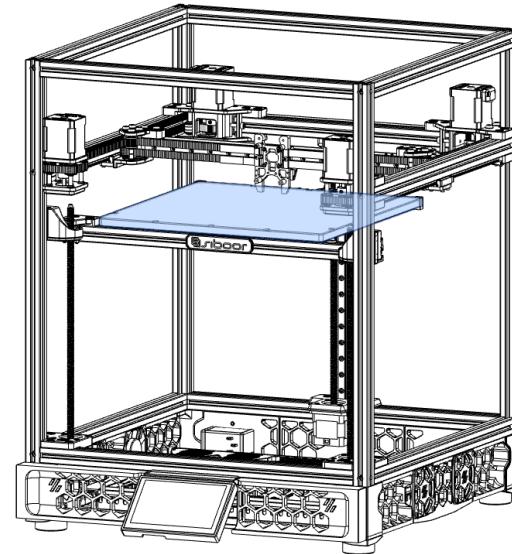
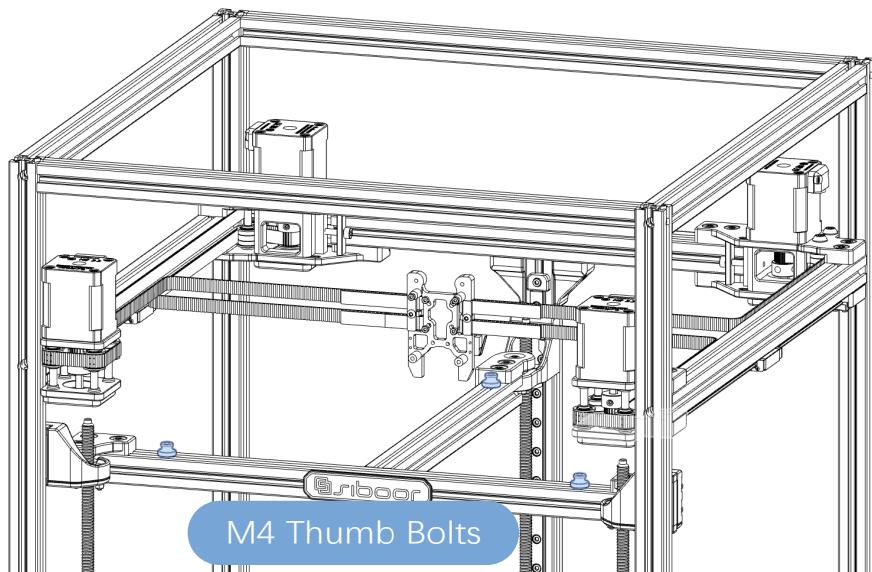
SIBOOR nameplate slides into the right side of the profile





LOOSEN AND RETIGHTEN

Slightly loosen the bolts that hold the bed frame to the printed parts and gently shake the bed frame before retightening them.

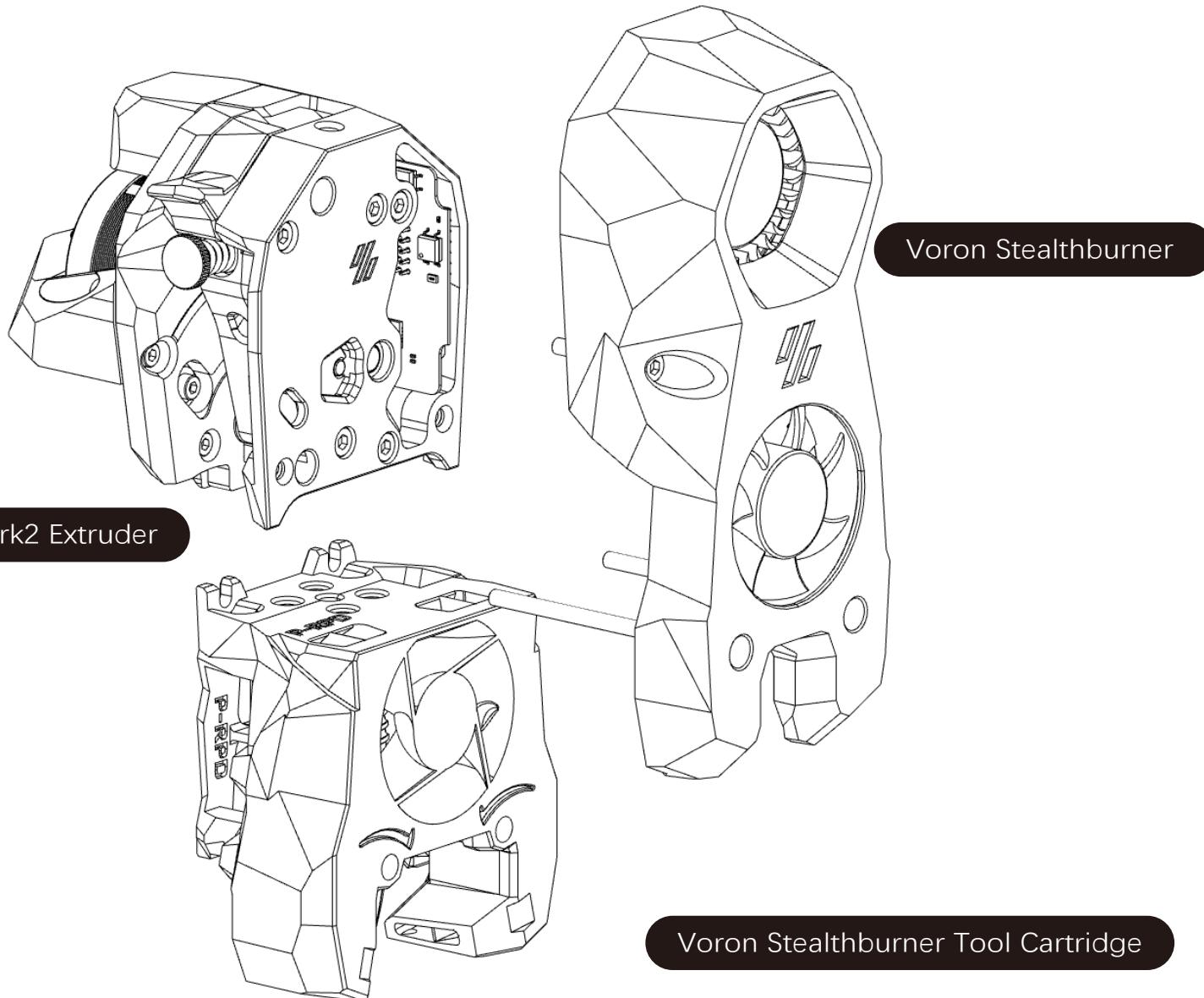


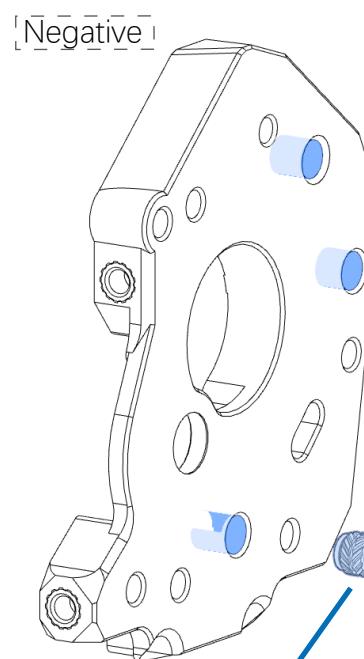
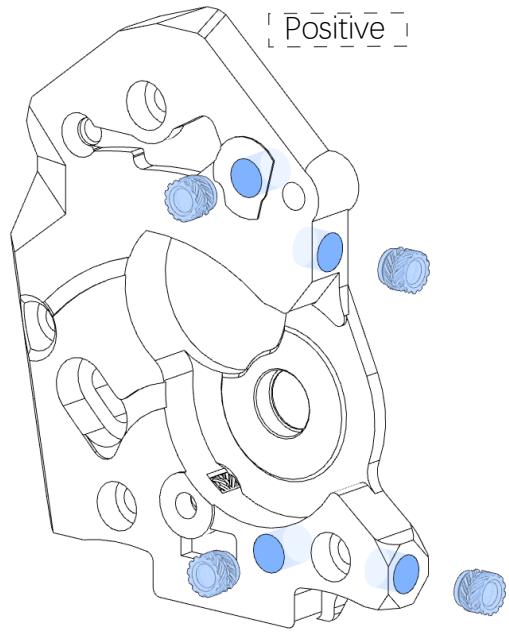
Alternative Experimental Solution

The KIT also provides an alternative testing approach. Using electrical insulationcolumns and PEEK M3×16 SHCS screws effectively prevents the bed's temperature from overflowing to the extrusion, helping to mitigate frame deformation due to thermal expansion and contraction.

The method of use remains consistent, but it's crucial to note that PEEK screws have limited strength. When installing, avoid applying excessive force to prevent potential breakage of the PEEK screws.

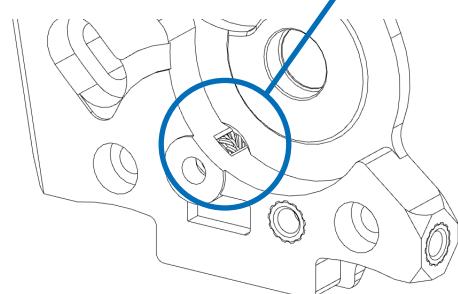
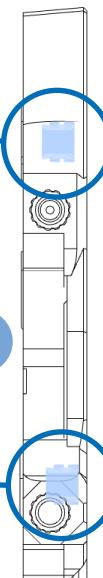






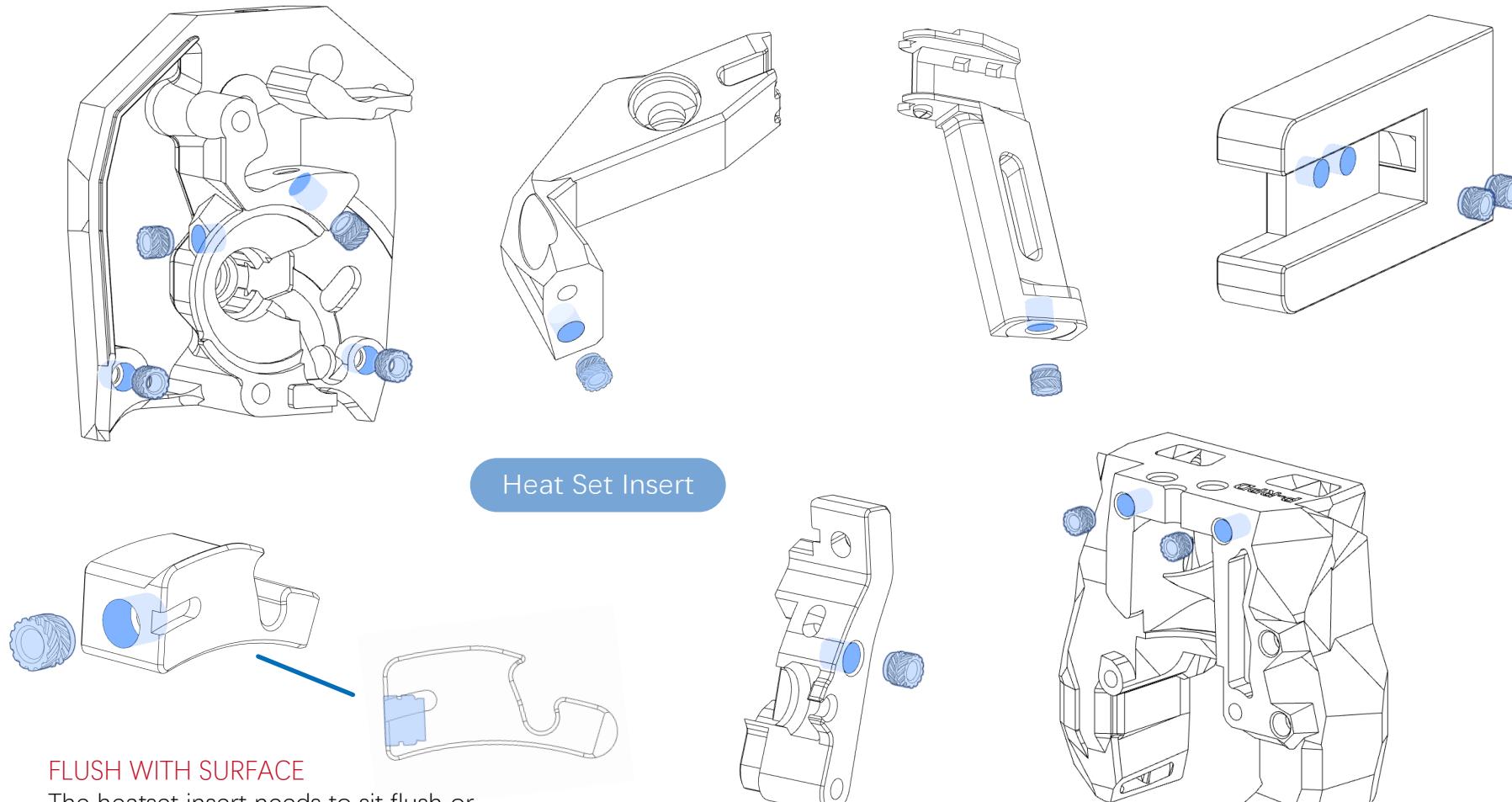
BELOW SURFACE

The top heatset insert needs to sit below the surface of the printed part.

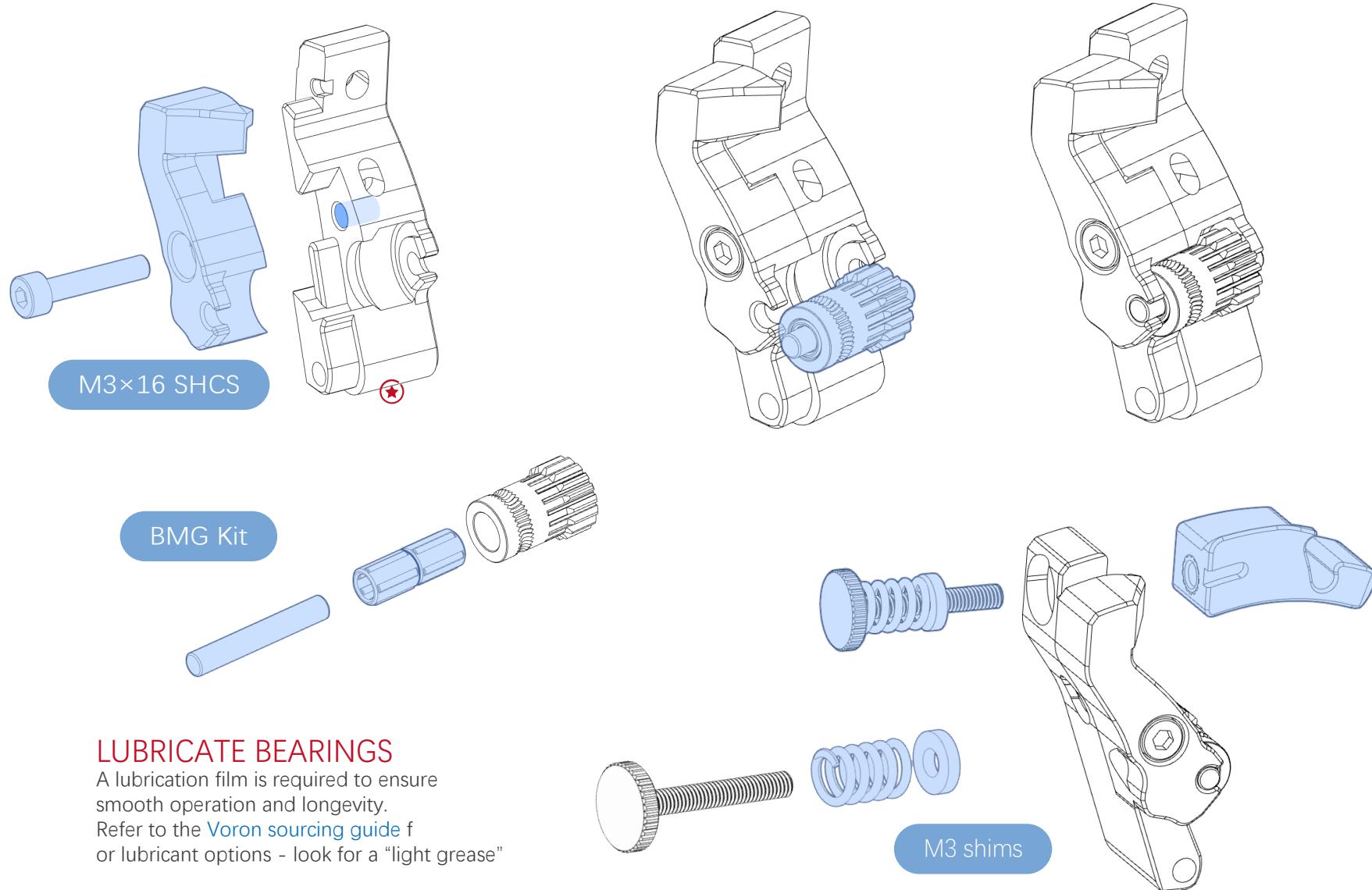


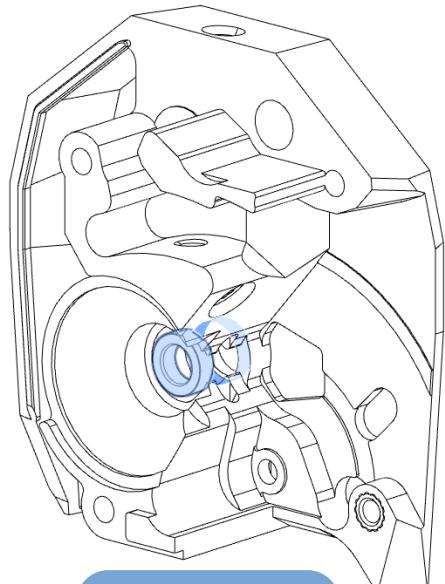
BELOW SURFACE

The bottom heatset insert needs to sit below the surface of the printed part. Mind the cutout in the part and make sure to install it straight.

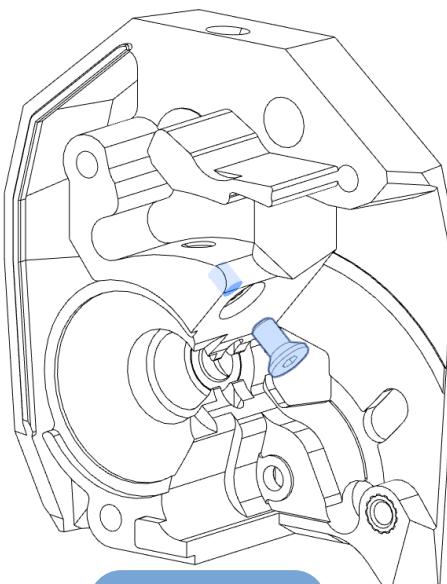
**FLUSH WITH SURFACE**

The heatset insert needs to sit flush or slightly below the surface of the printed part.

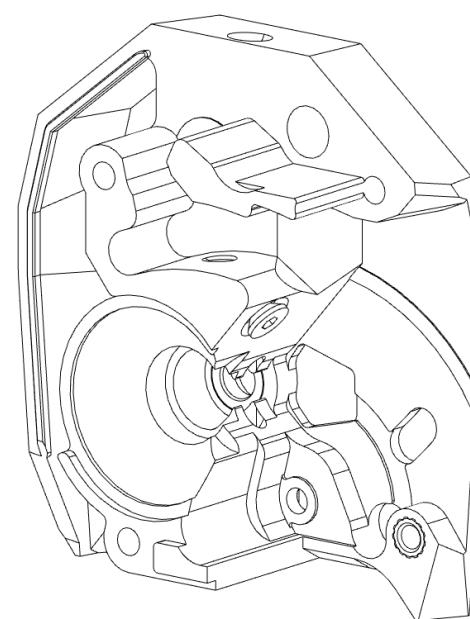




MR85 Bearing

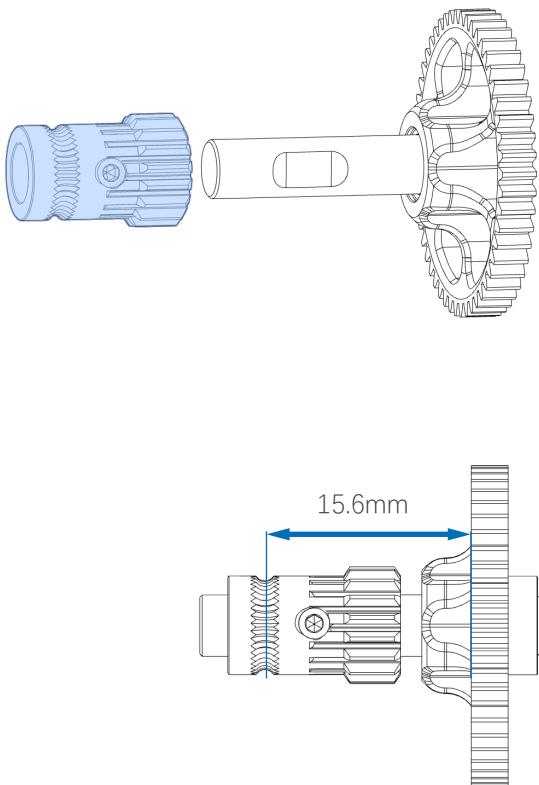


M3×6 FHCS



BEARING FIT

Fully seat the bearing into the plastic pocket.
Apply even pressure to insert them. Avoid
pressing on the inner ring of the bearing.

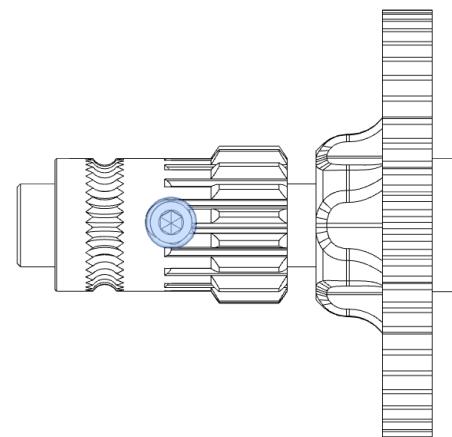


INITIAL POSITION

The final position is set later.

DRIVE GEAR

Make sure the set screw in the filament drive gear is seated against the notch in the shaft. Carefully tighten the set screw, the head is easy to strip

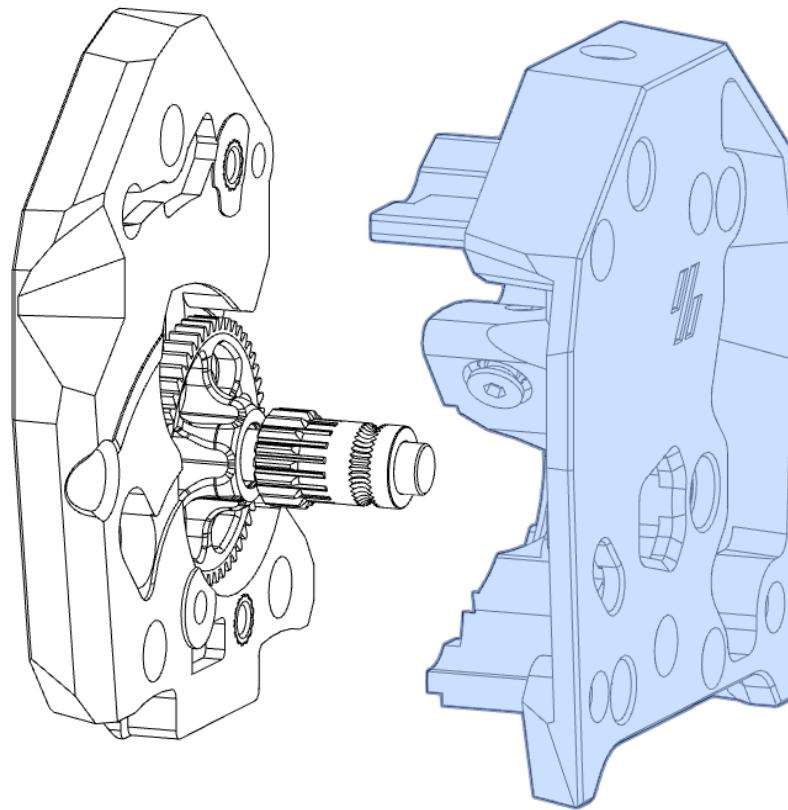
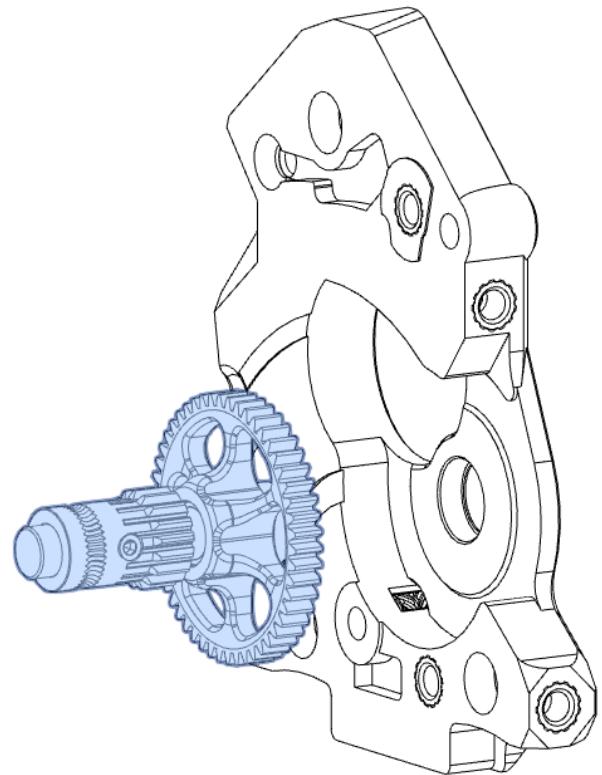


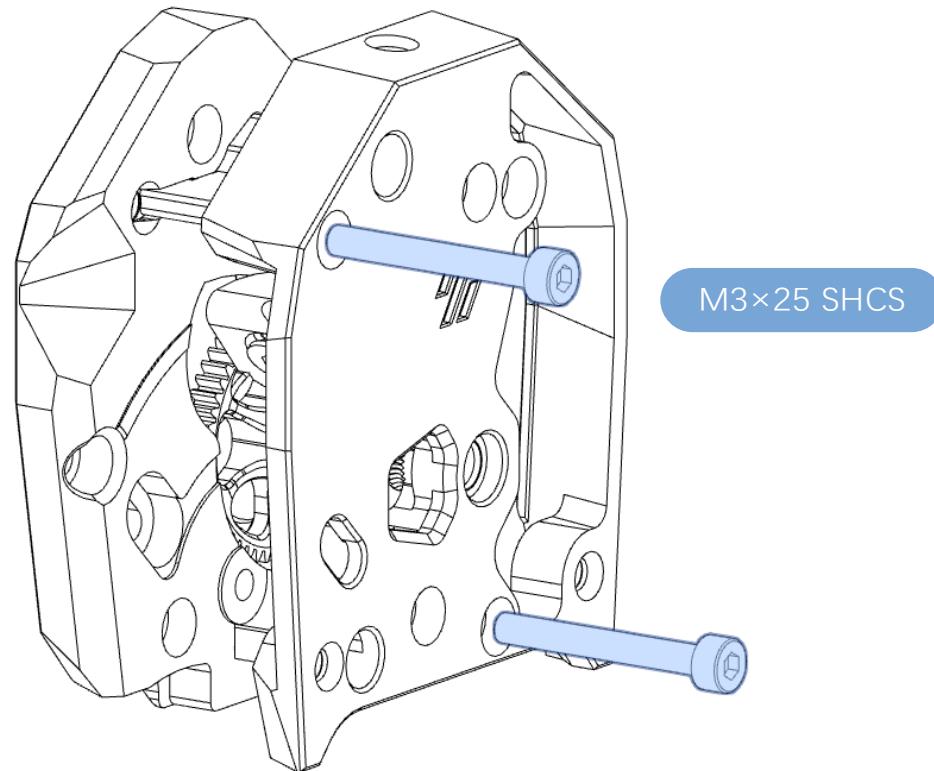
THREAD LOCKER

The final position of the drive gear is set in a later step. Common thread lockers have a long enough working time to complete the steps without issues.

Familiarize yourself with the steps on the next 3 pages before you apply thread locker.

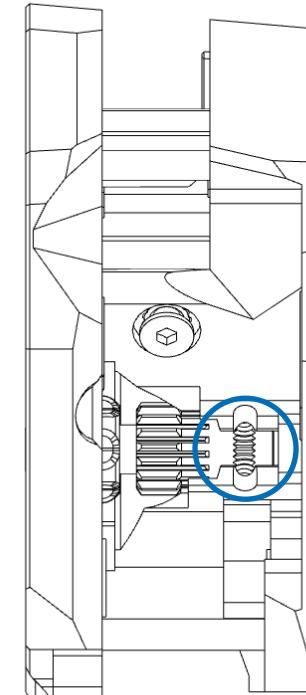
Complete the steps on the next 3 pages after applying the thread locker.





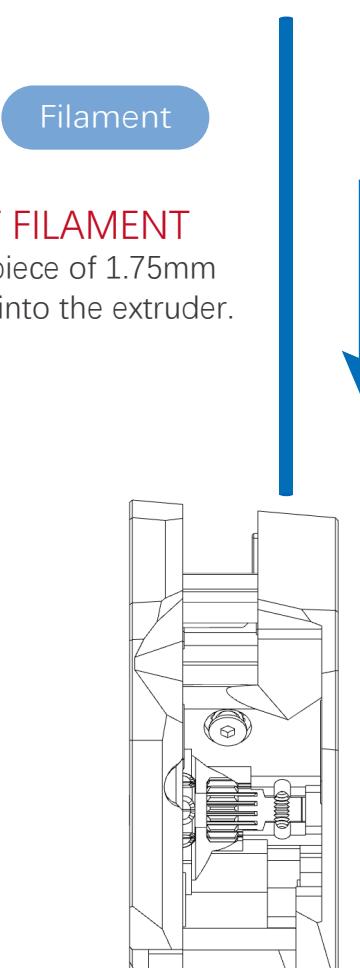
DON'T OVERTIGHTEN

Tighten until the plastic bends and cracks.
Back up 2 turns, discard parts, reprint and try again.



INITIAL ALIGNMENT CHECK

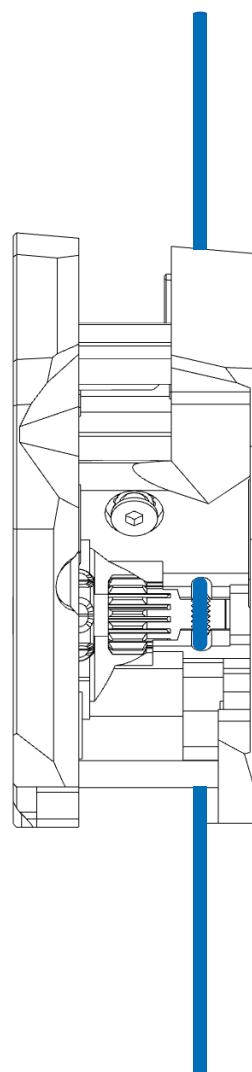
Check if the filament path aligns with the toothed section of the drive gear.



Filament

INSERT FILAMENT

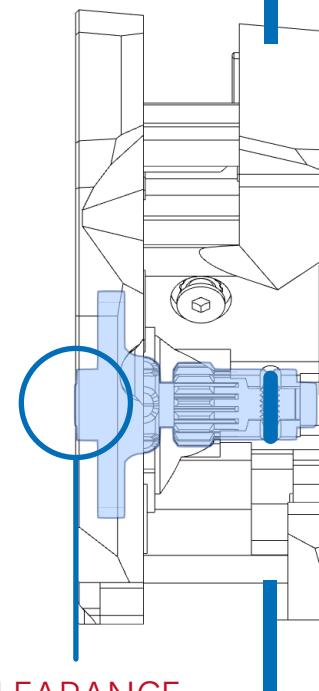
Insert a piece of 1.75mm filament into the extruder.



CHECK ALIGNMENT

With the filament inserted, verify if the filament path and drive gear are aligned.

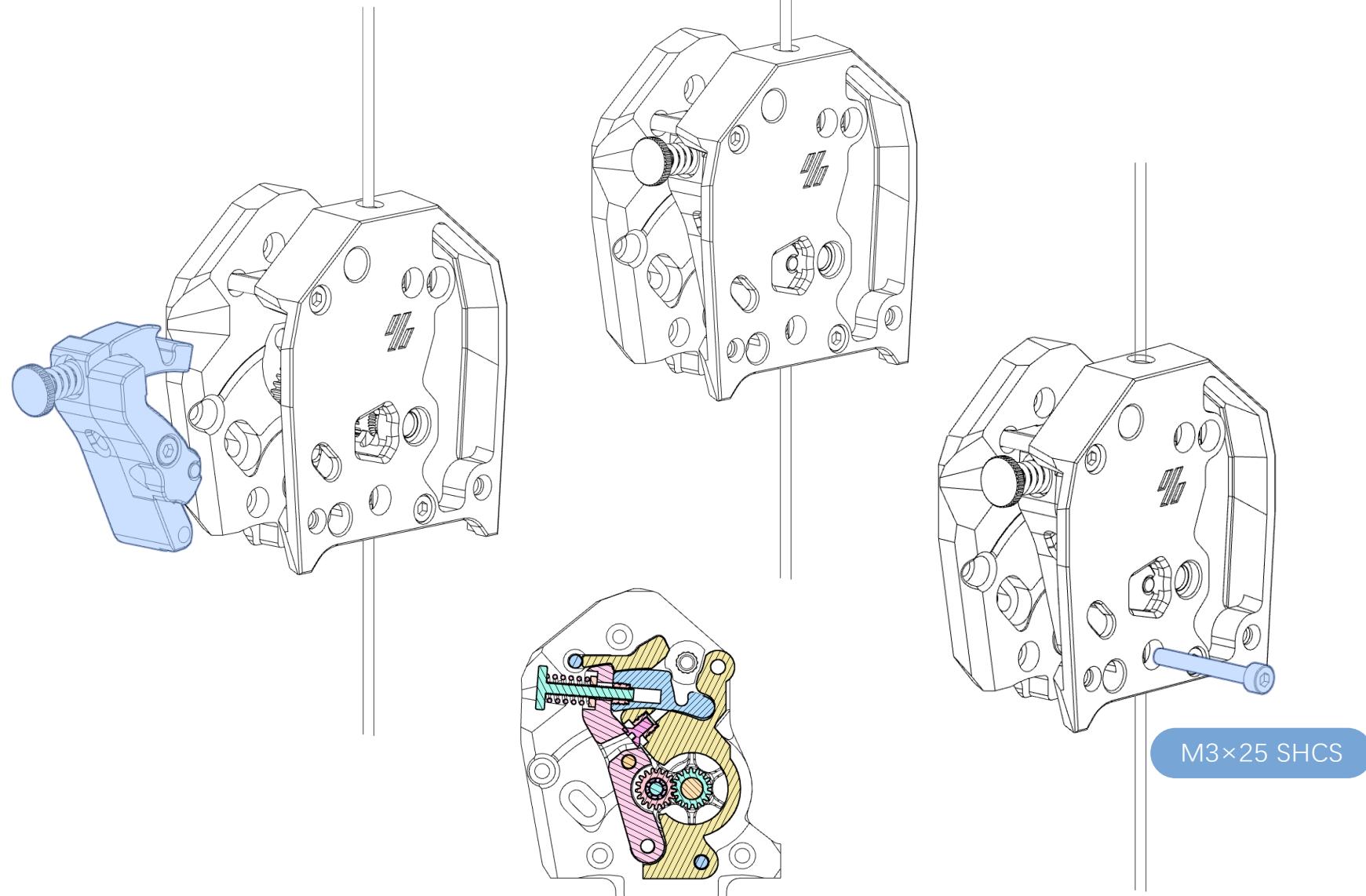
Loosen the set screw and adjust the position of the drive gear if required.

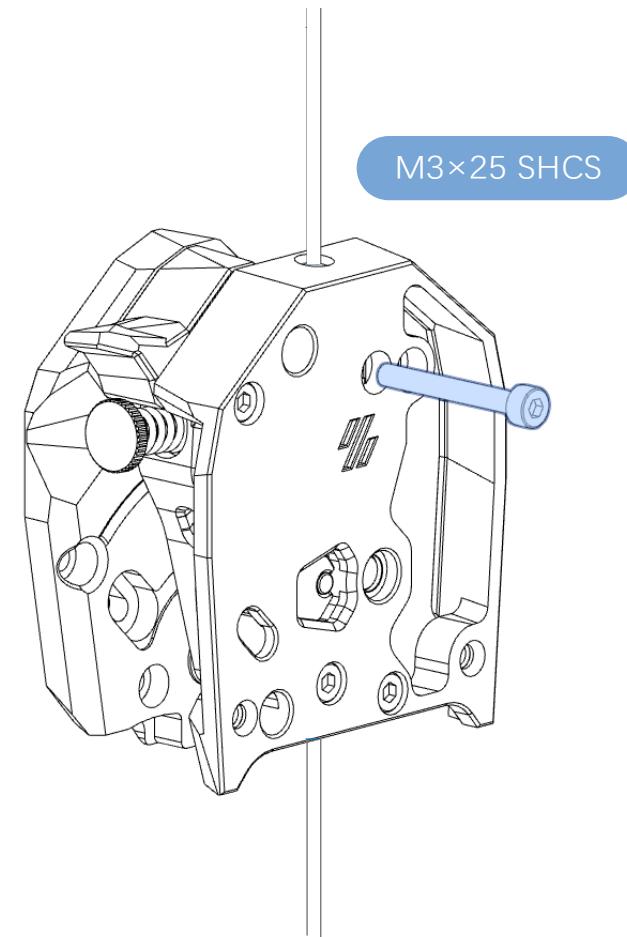
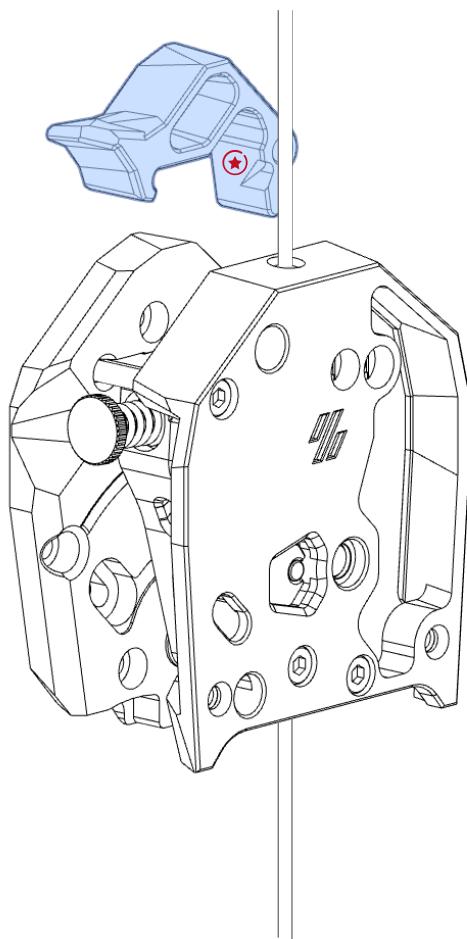


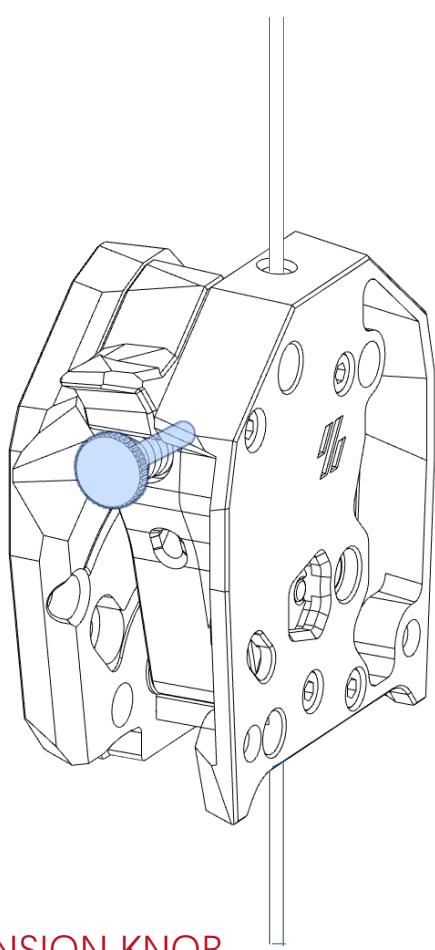
CHECK FOR CLEARANCE

The drive shaft must not touch the motor housing. Make sure it does not sit above the surface of the printed part.

Check if the shaft has sufficient clearance when fully seated. Depending on the shafts tolerances you may need to adjust the position of the drive gear or sand the face of shaft.

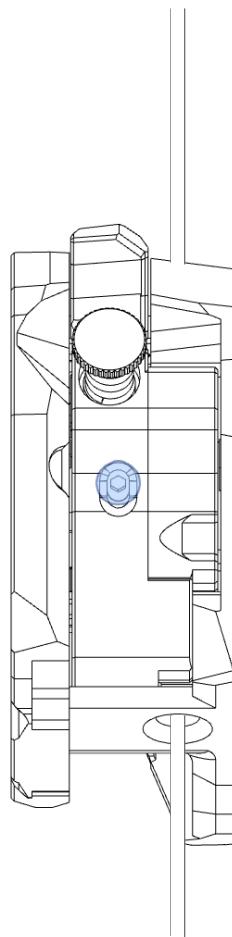






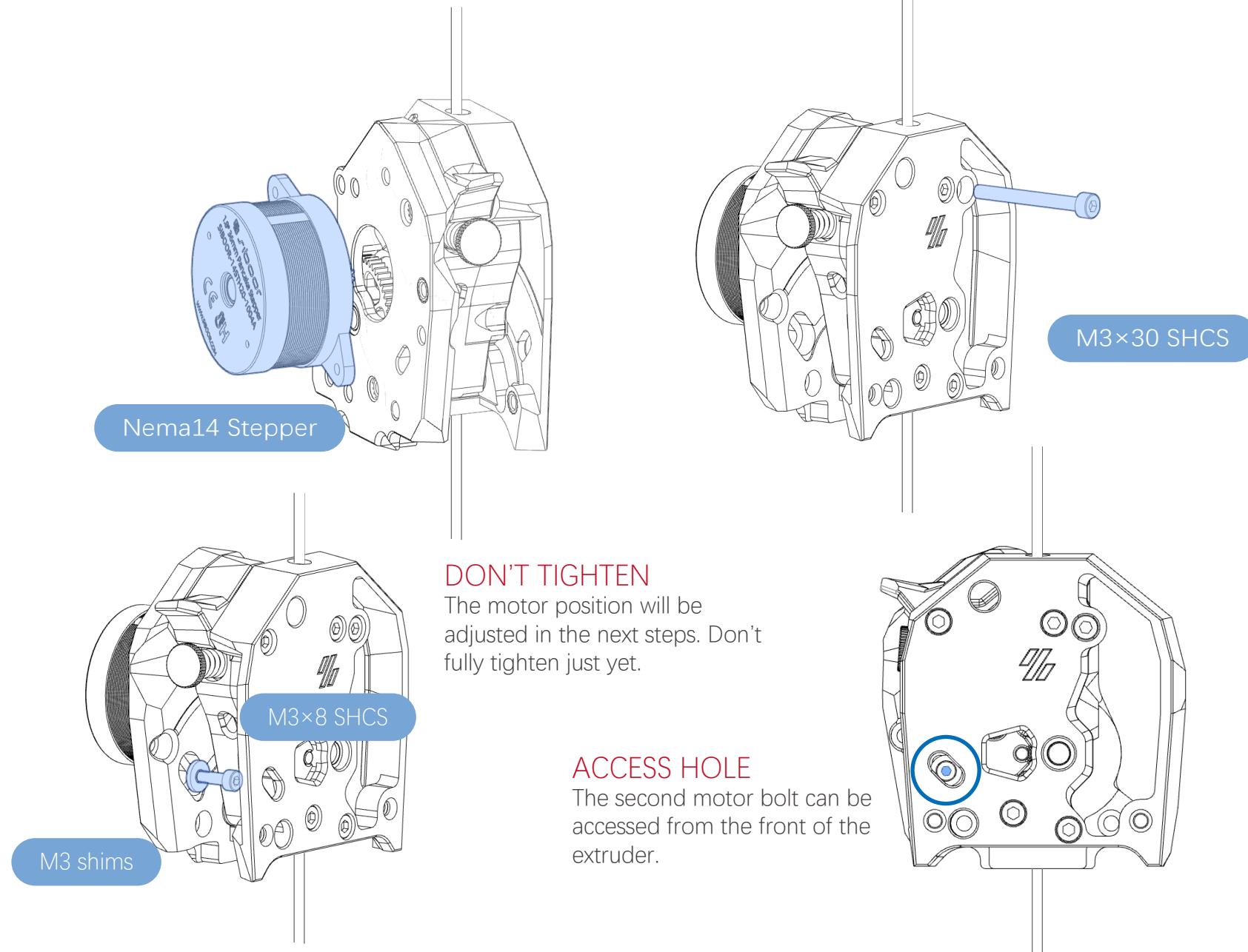
TENSION KNOB

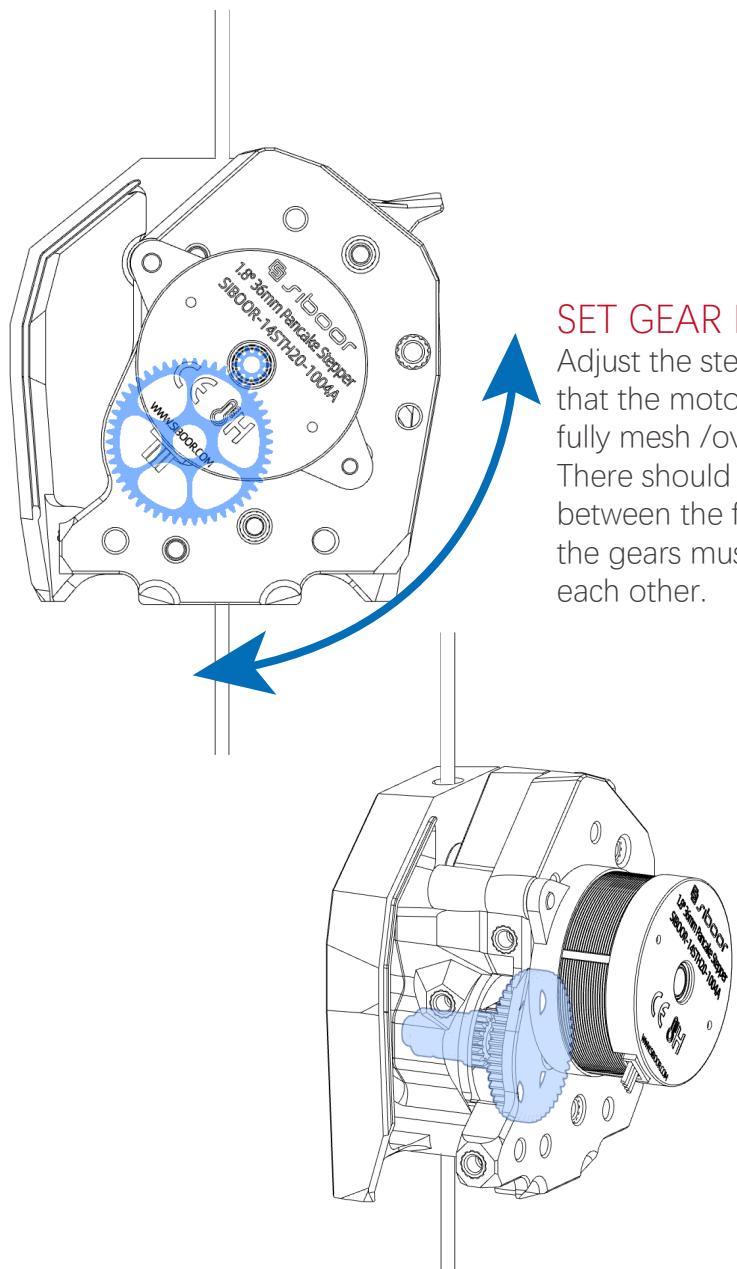
Turning the thumb screw clockwise will increase the tension and grip on the filament. Too much tension will result in print issues.



ANTI SQUISH THINGYMAJIG

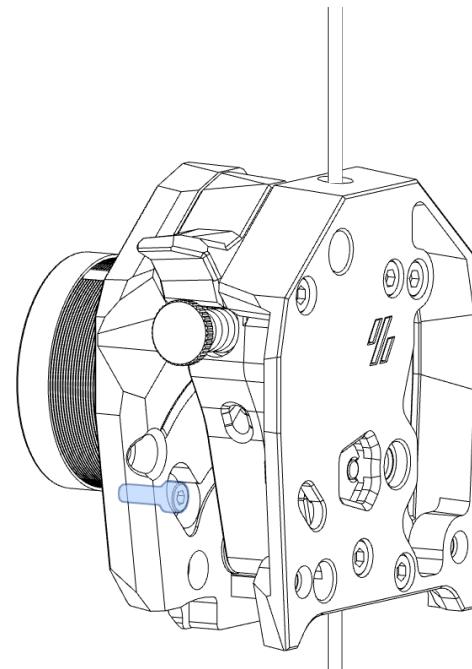
Softer and flexible materials will deform and extrude poorly under too much tension. ClockWork2 adds an adjustment feature to set the minimum distance between the drive gear and the idler, limiting the squish on the filament, and to prevent the gears from meshing too tightly or binding up the extruder.





SET GEAR MESHING

Adjust the stepper motor position so that the motor and extruder gear teeth fully mesh /overlap with each other. There should be a very small gap between the faces of the gear teeth; the gears must not press tightly against each other.

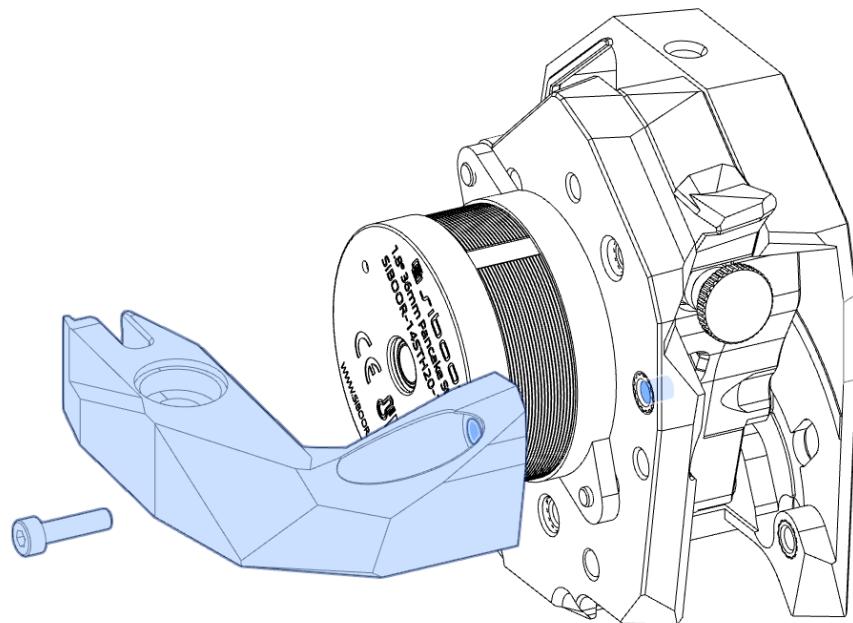


TIGHTEN WHEN DONE

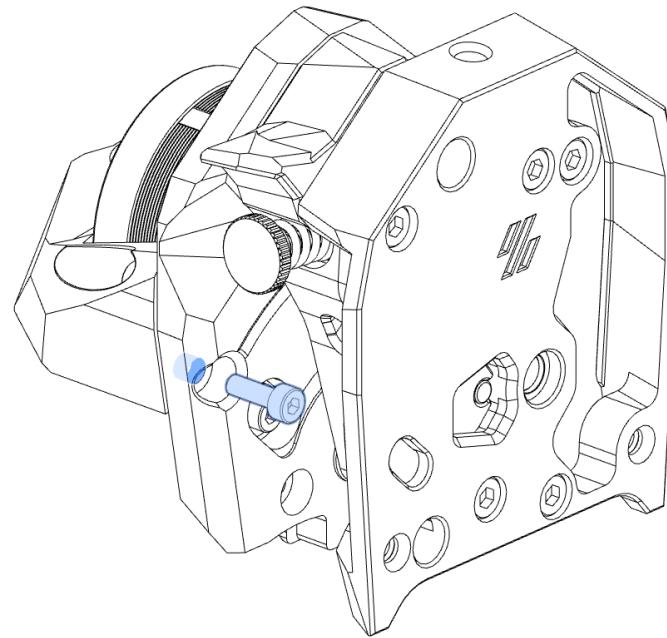
Don't forget to tighten the second motor bolt after adjusting

CHECK GEAR PLAY

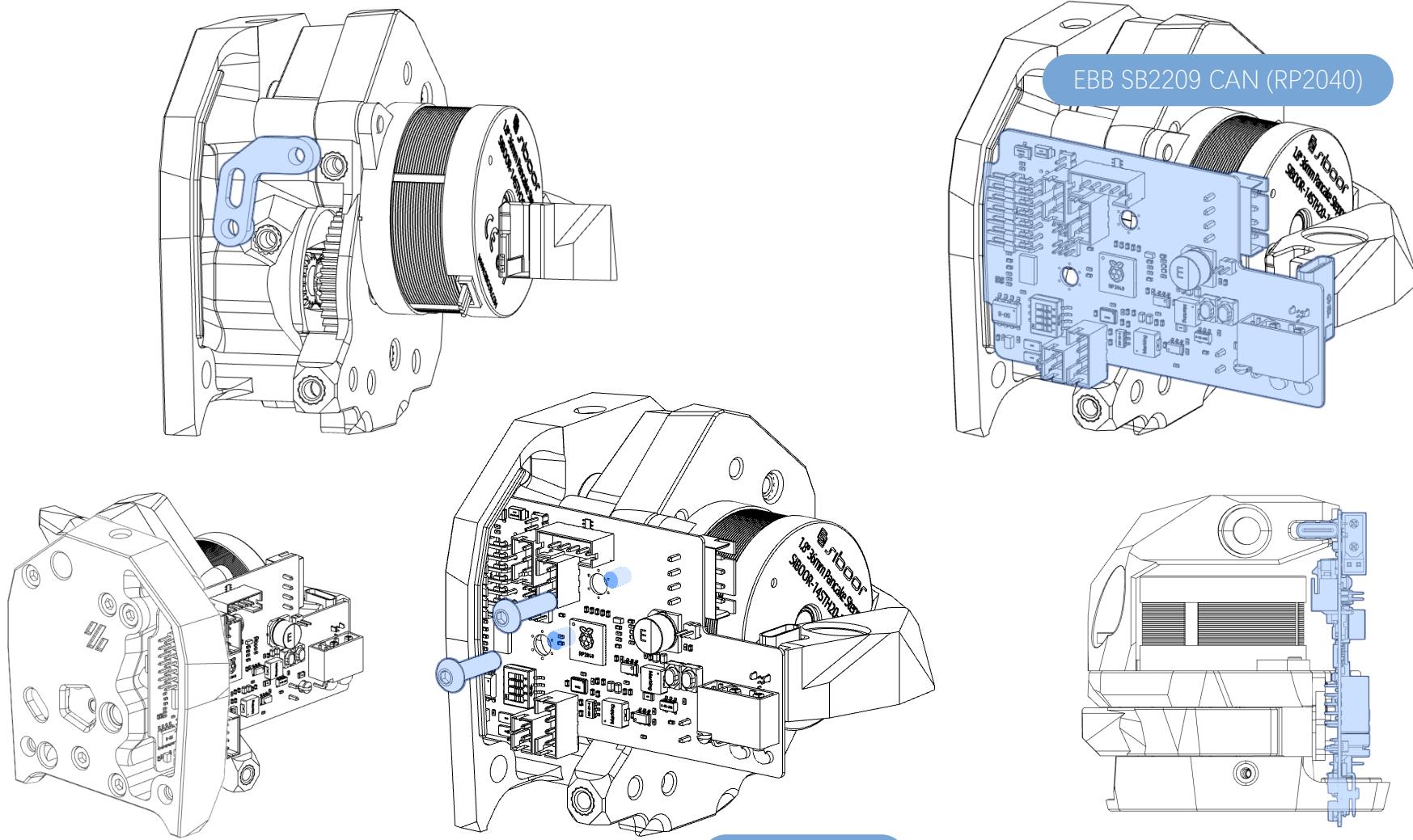
The gear should have a slight play and should not be fully tight against the pinion. Adjust the position of the motor until you have a faint play

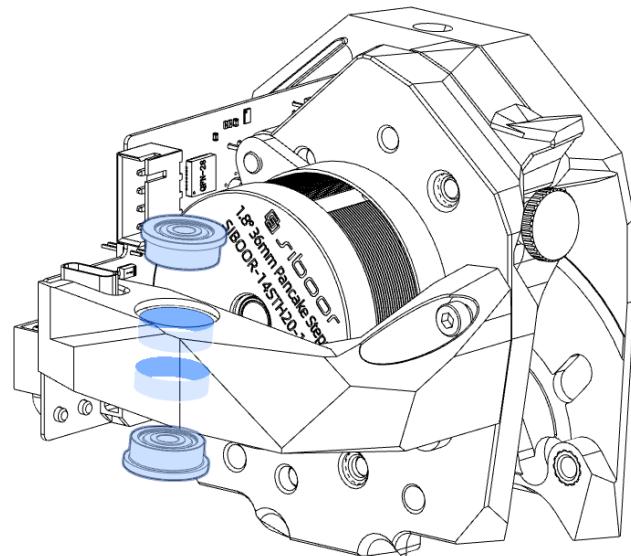


M3×10 SHCS

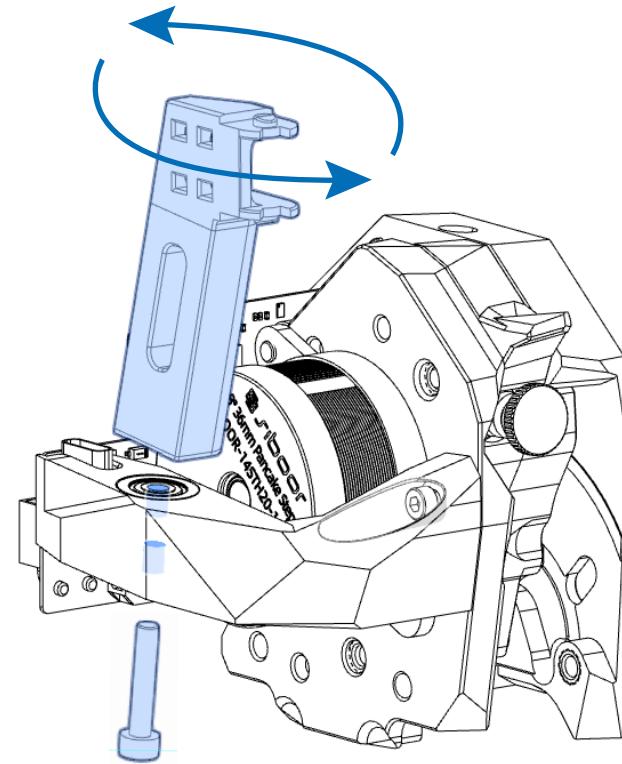


M3×8 SHCS





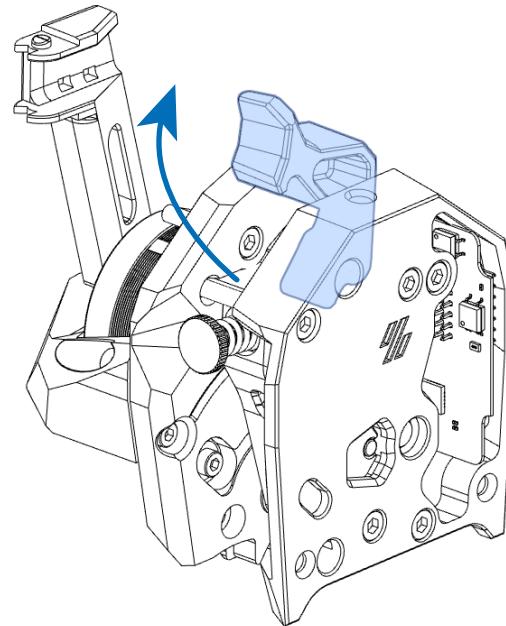
F623 Bearing



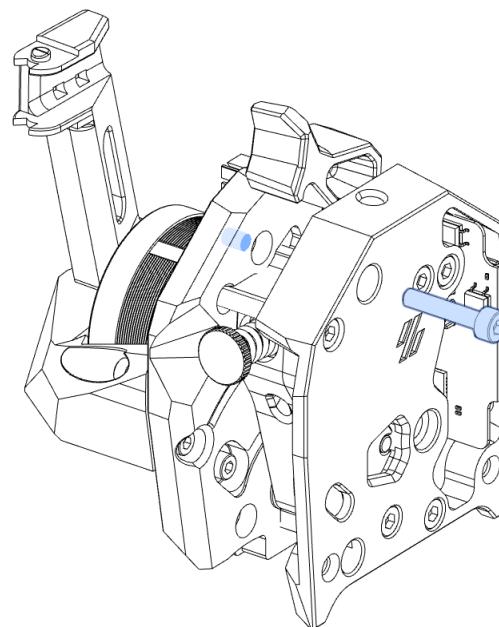
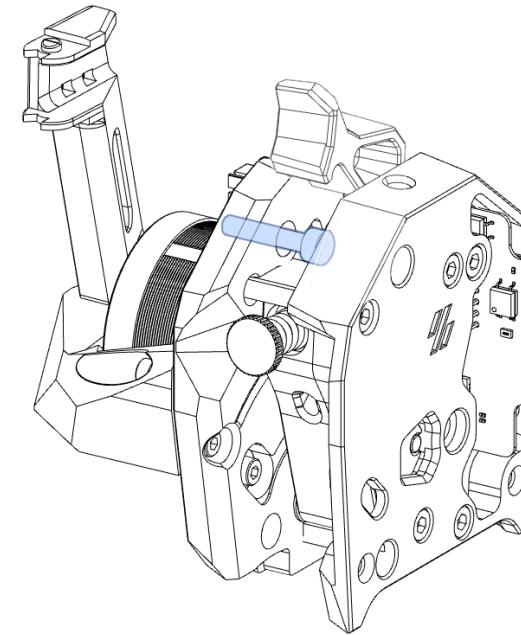
M3×20 SHCS

DON'T OVERTIGHTEN

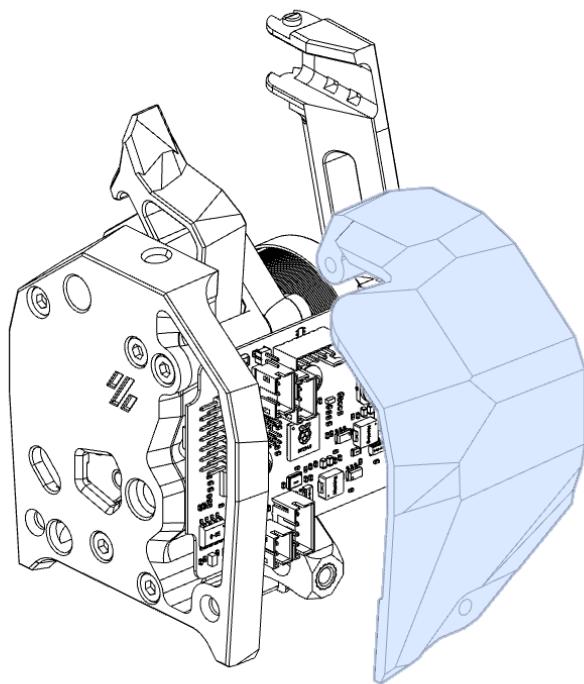
The drag chain bracket should rotate smoothly 360°.

**OPEN LATCH**

Undo the filament latch to expose the bolt pocket for the cable cover.

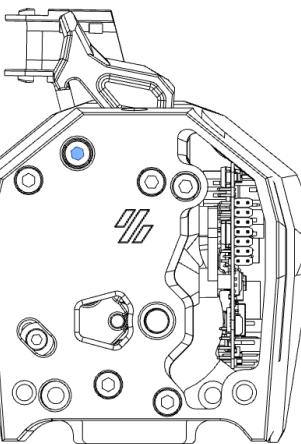


M3×16 SHCS



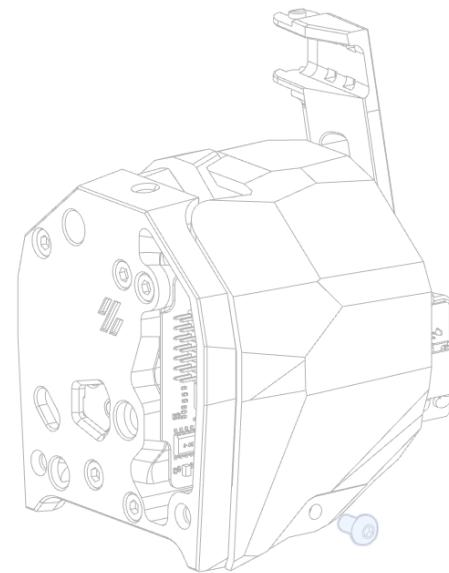
ACCESS HOLE

The bolt drive can be accessed from the front of the extruder.



DON'T OVER-TIGHTEN

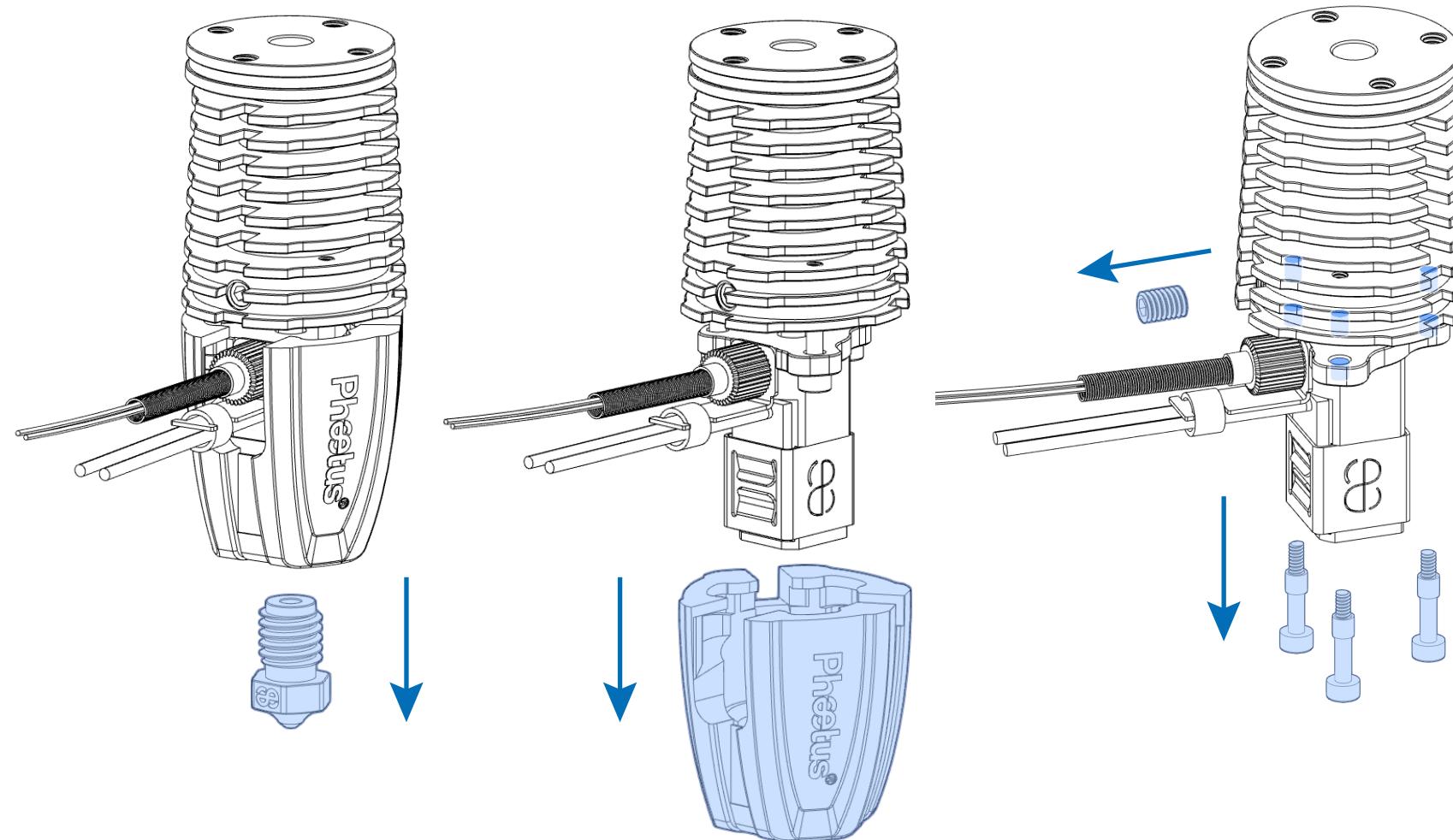
The bolt is threaded directly into plastic.

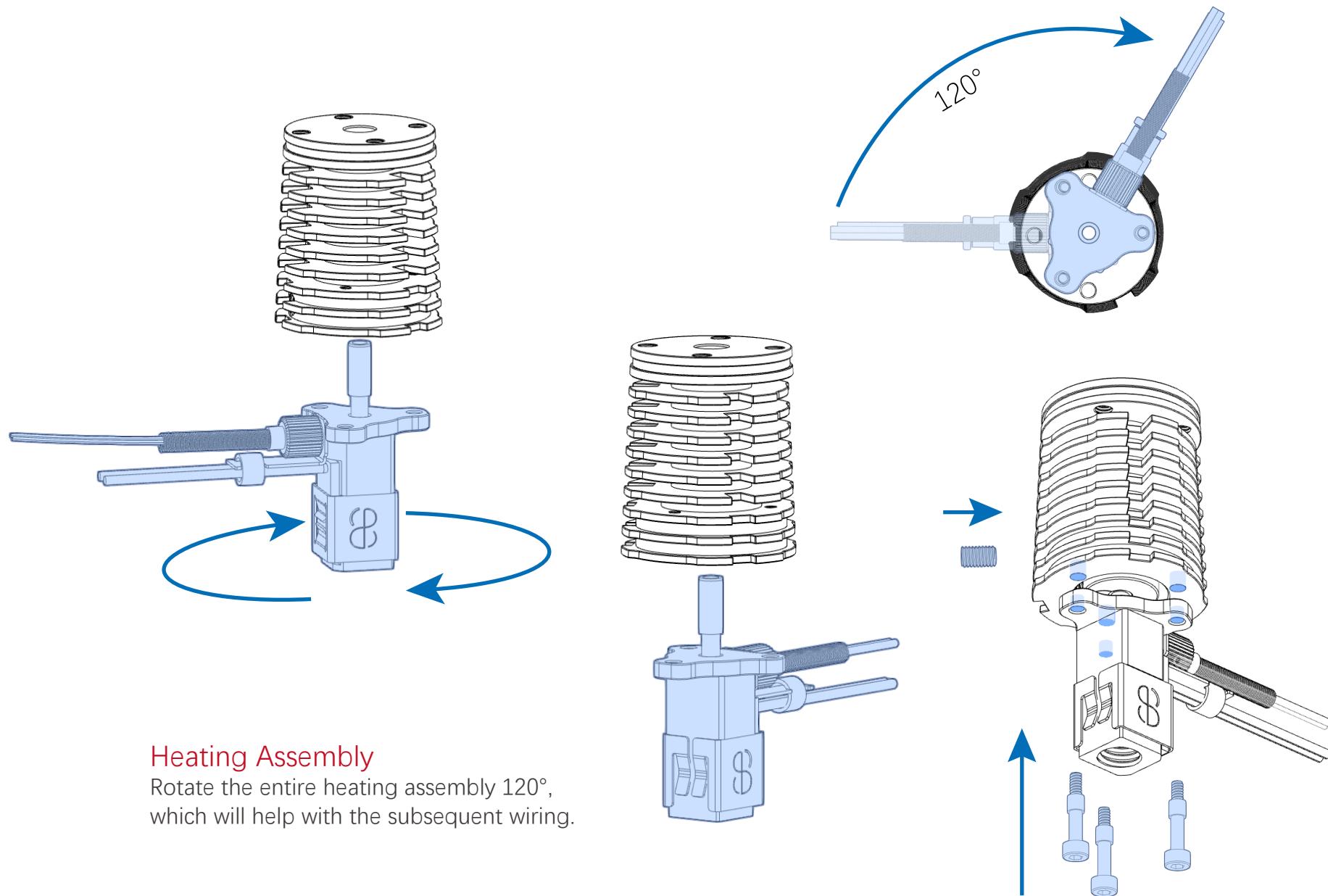


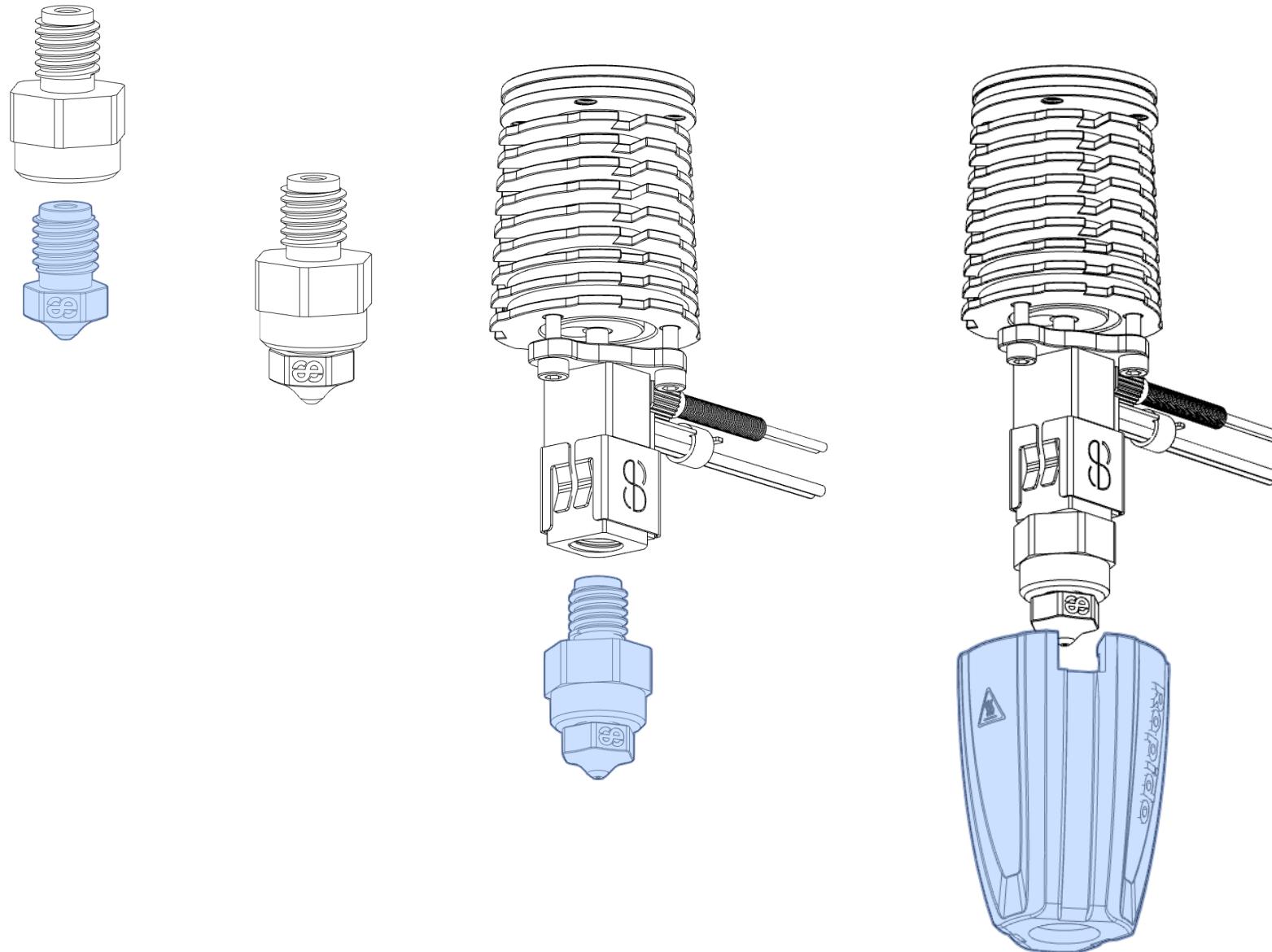
M3×6 BHCS

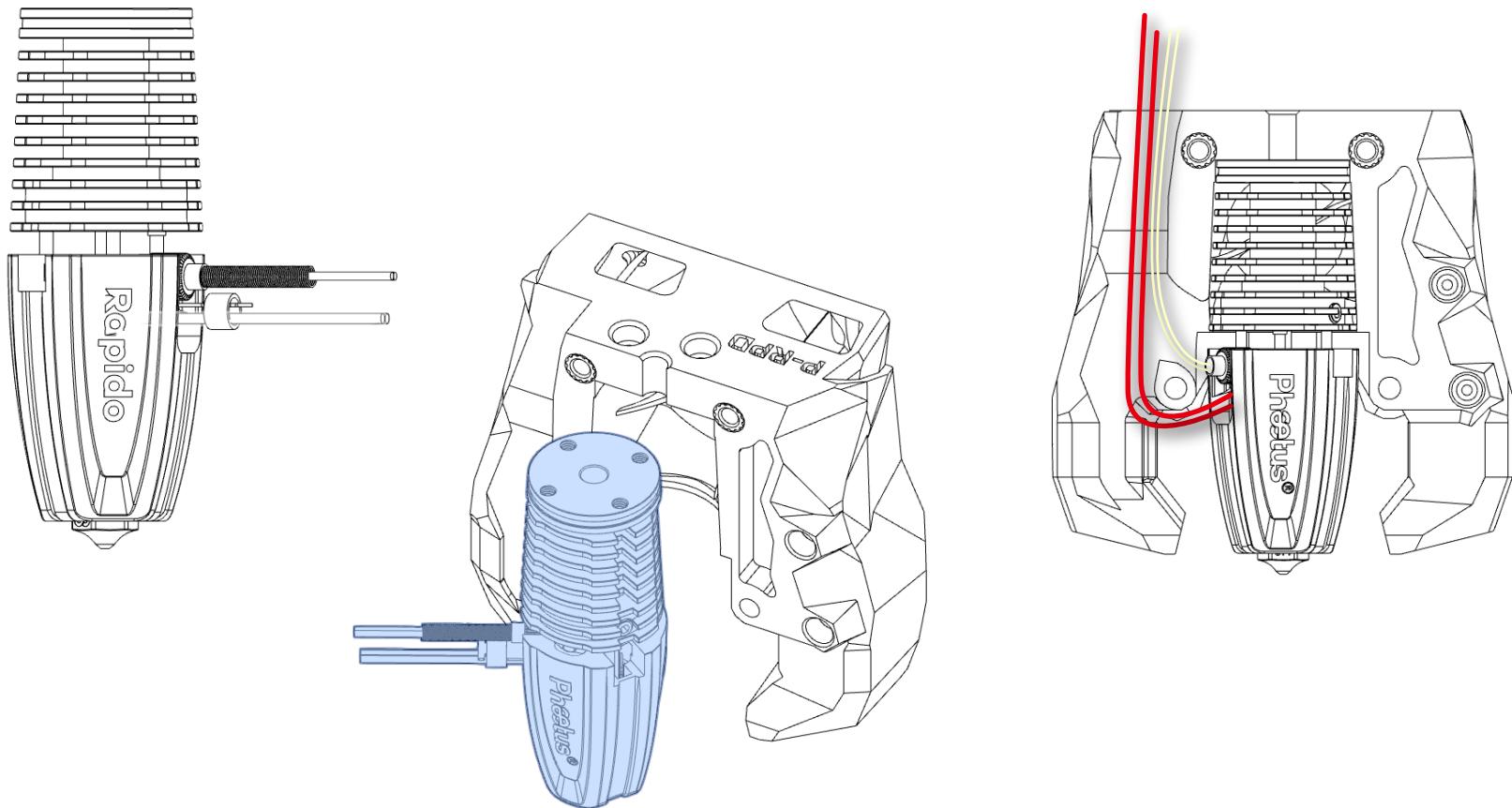
CABLE COVER

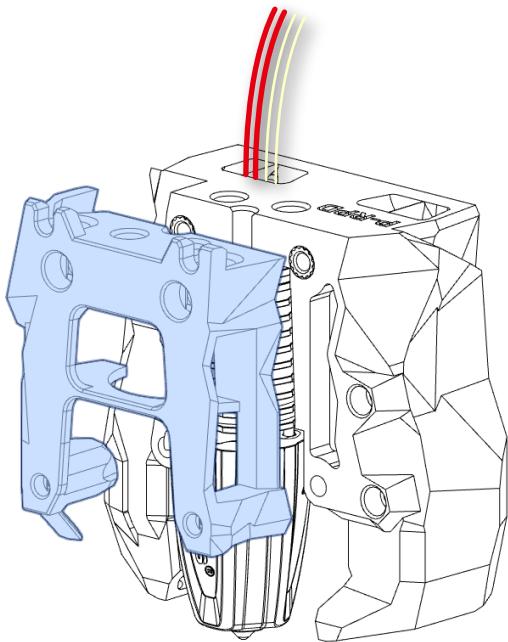
The cable cover can be secured using M3×6 BHCS screws, but not now, as we still need to do the wiring.



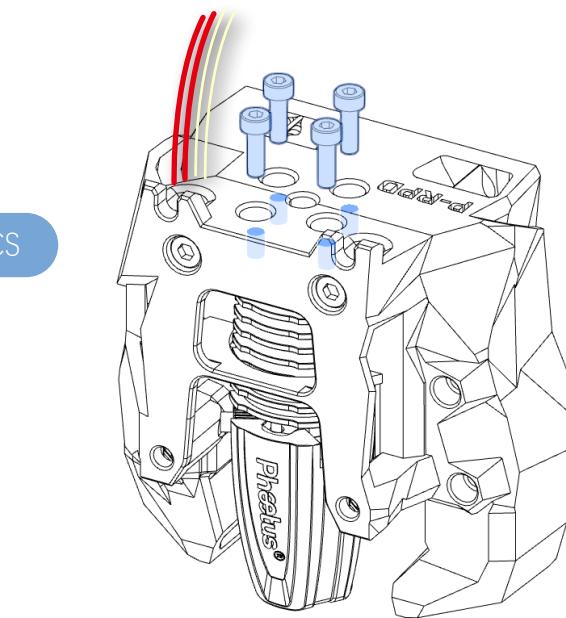
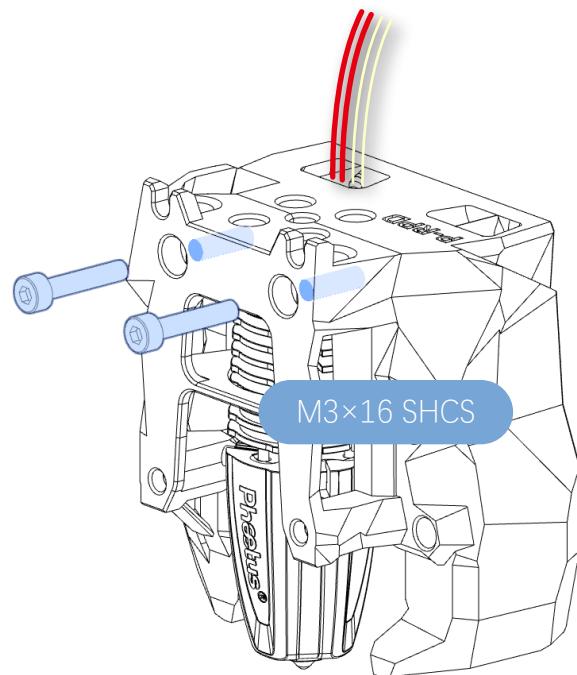






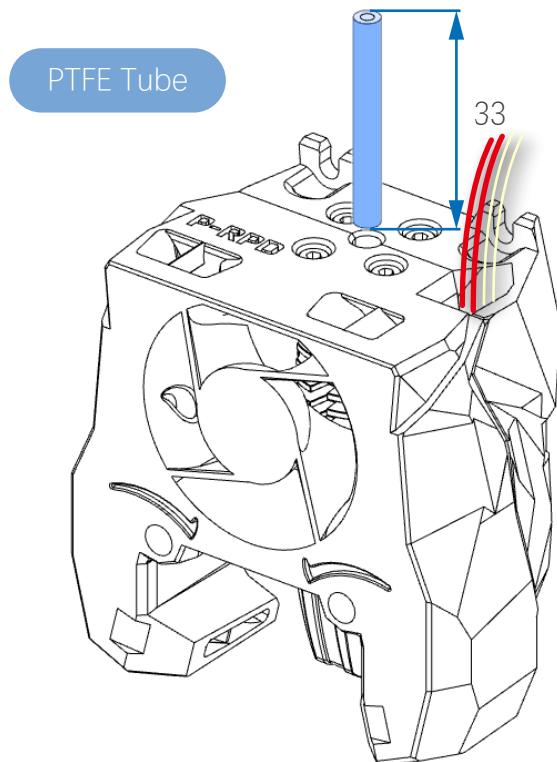


M2.5×8 SHCS



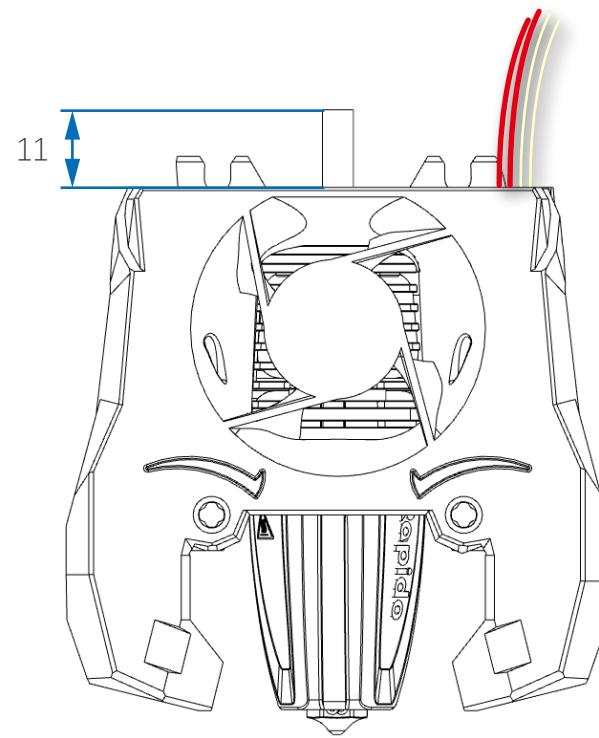
PTFE Tube

Where is the PTFE tube? It is usually a 2-meter white tube that needs to be cut to size.



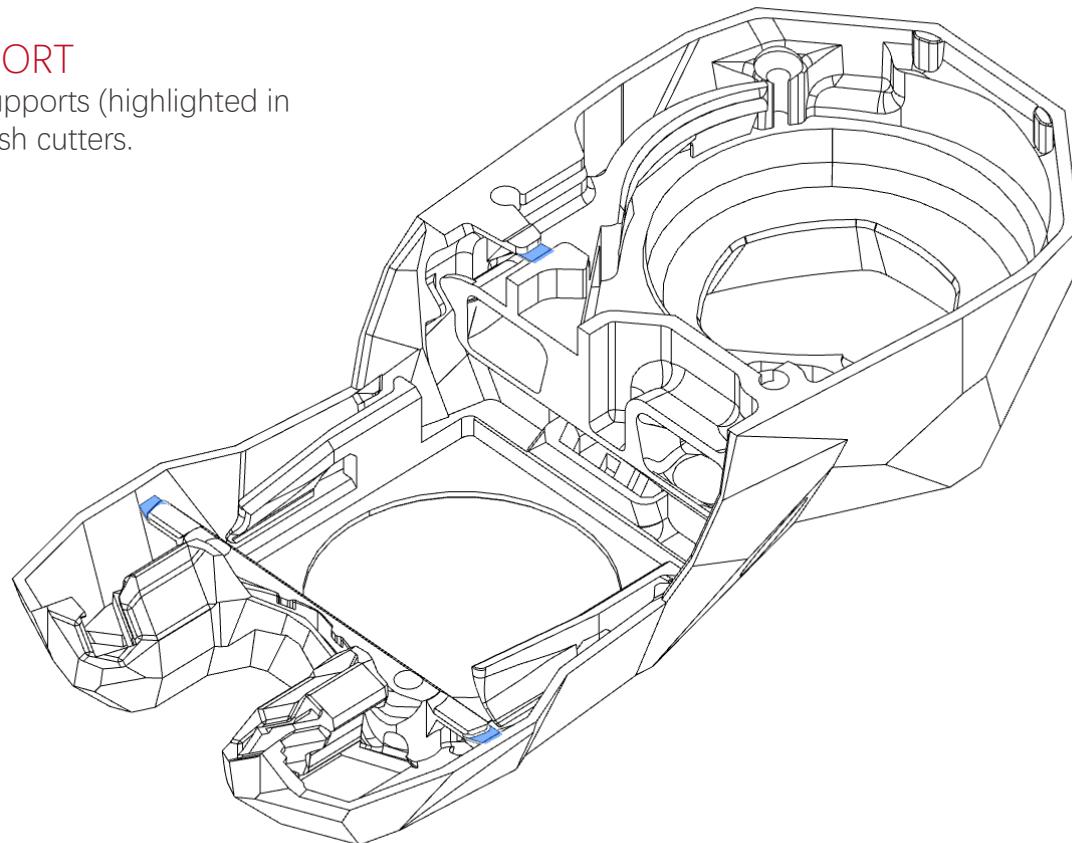
PTFE STICKOUT

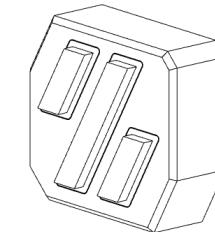
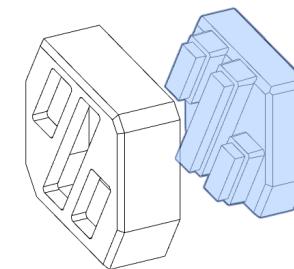
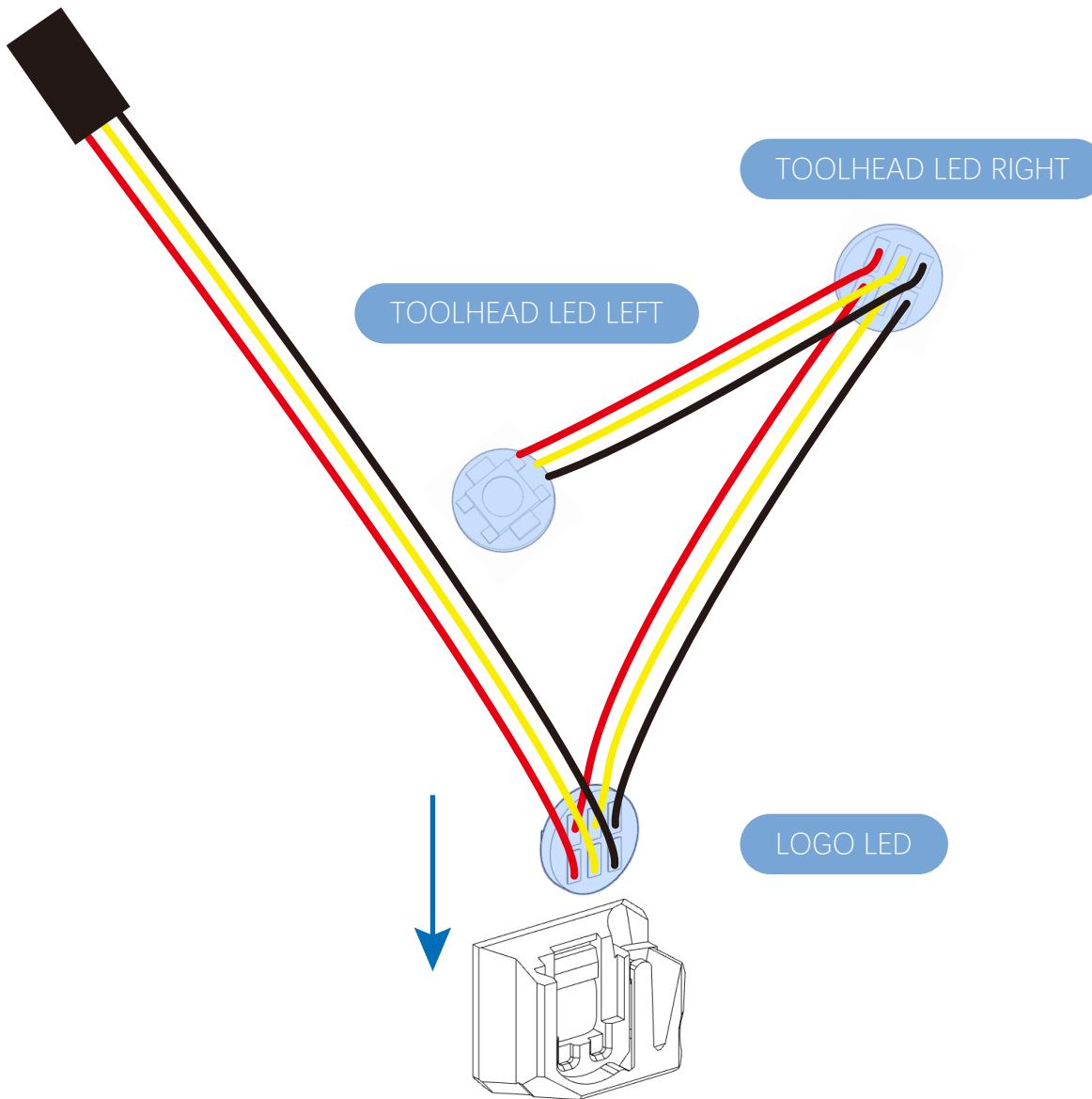
The PTFE tube should stick out 11mm above the surface of the printed part.

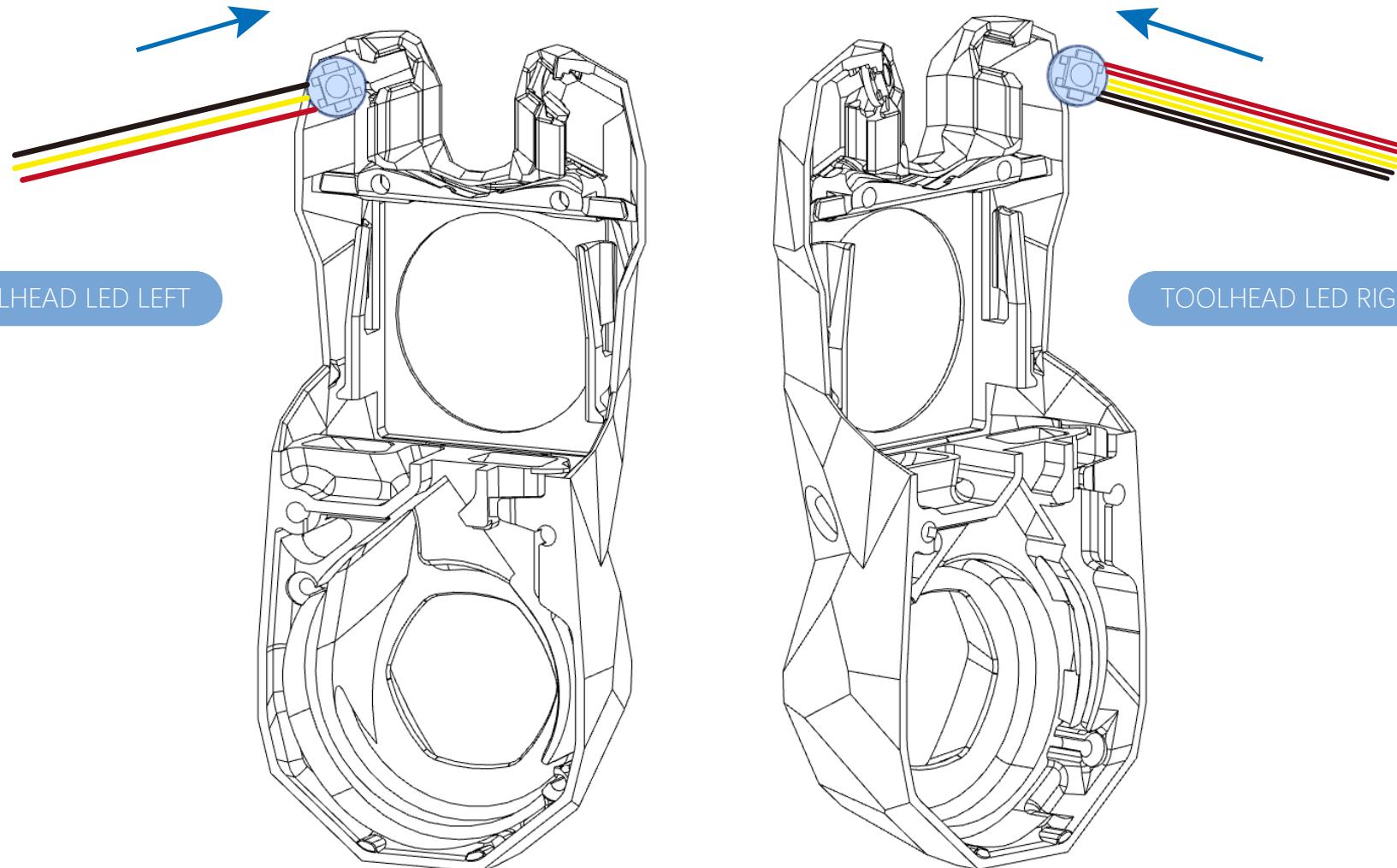


REMOVE SUPPORT

Remove built-in supports (highlighted in the image) with flush cutters.

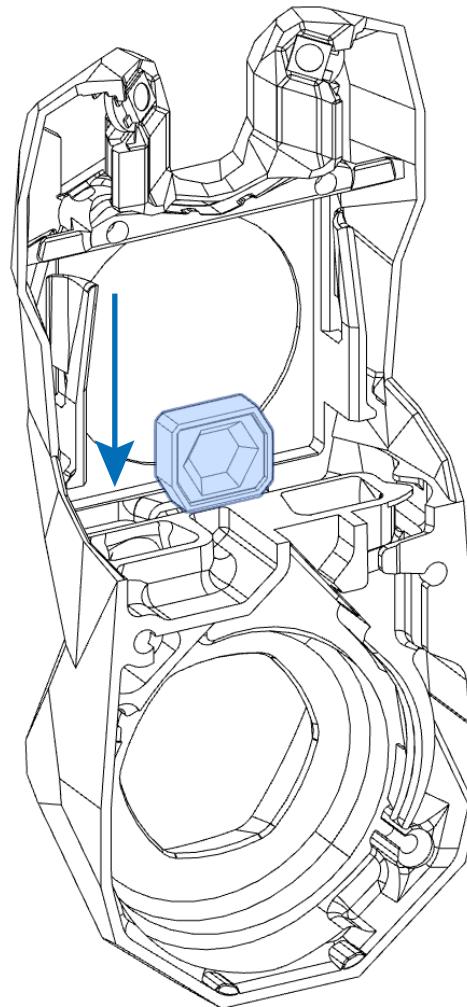




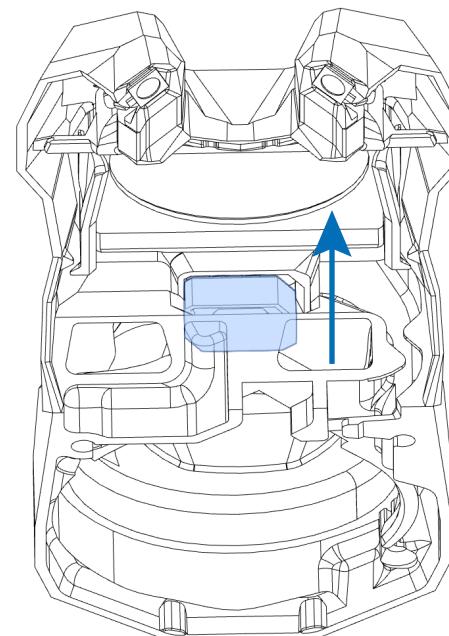


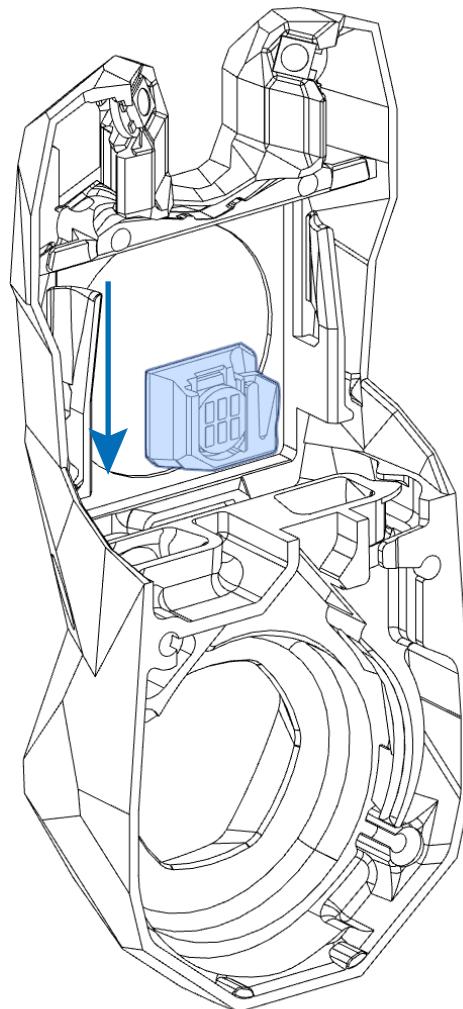
TOOLHEAD LED LEFT

TOOLHEAD LED RIGHT

**DIFFUSER INSERTION**

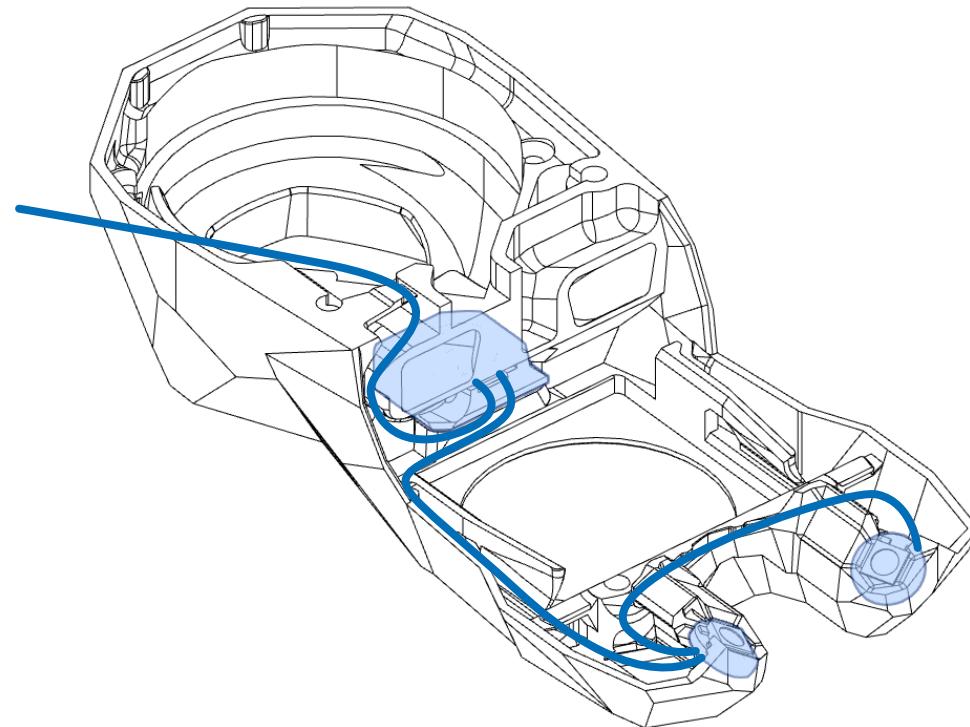
Insert the printed parts and push them towards the front.

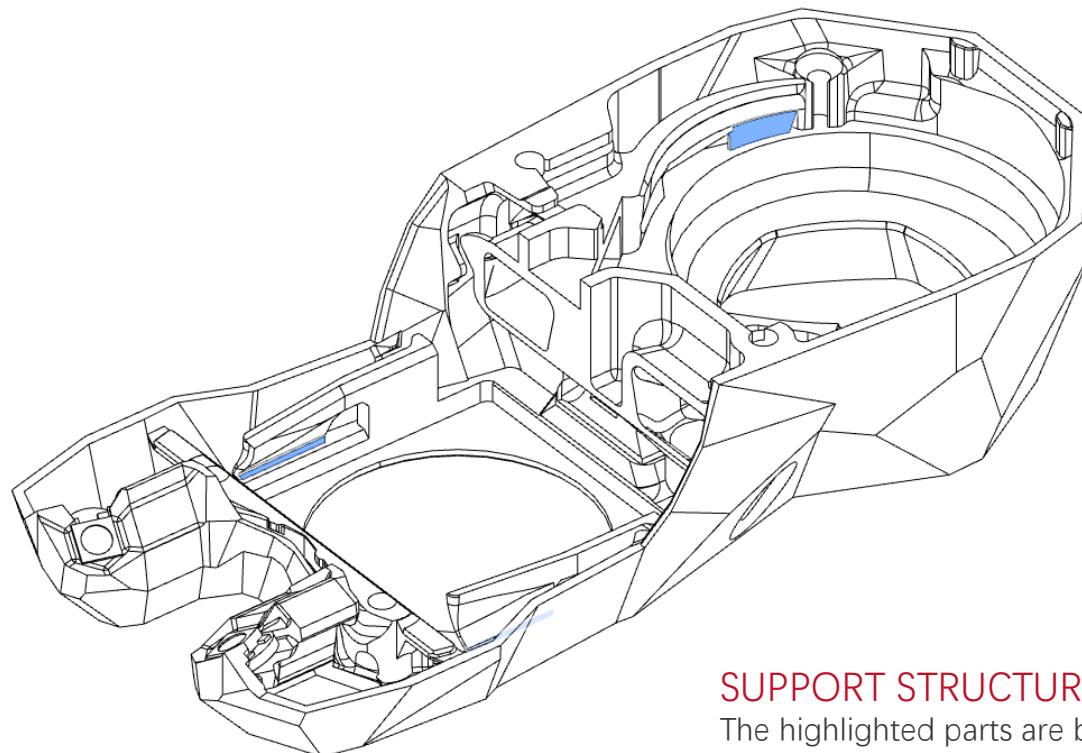




LED WIRE ROUTING

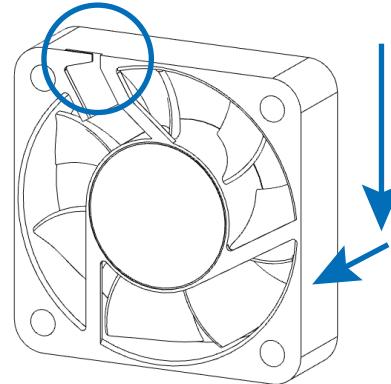
Route the LED wires as shown; wires exit on the right side.





SUPPORT STRUCTURE

The highlighted parts are build-in support structures. They are designed to break during the fan installation.



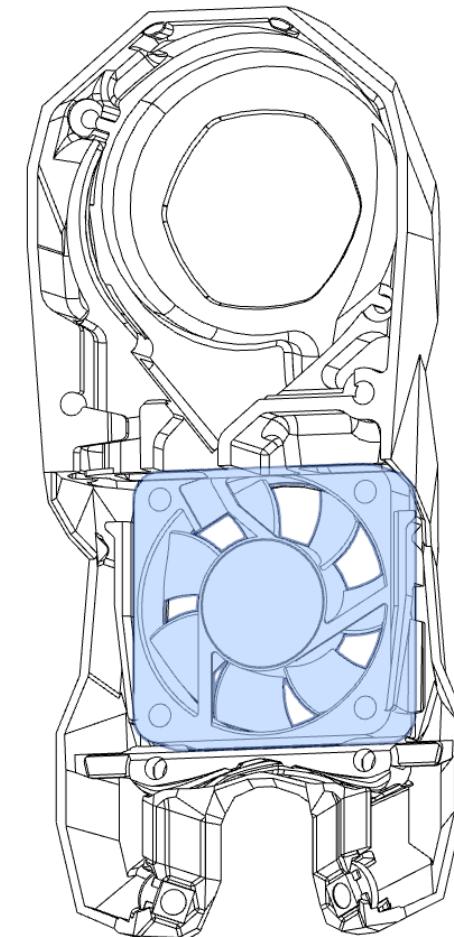
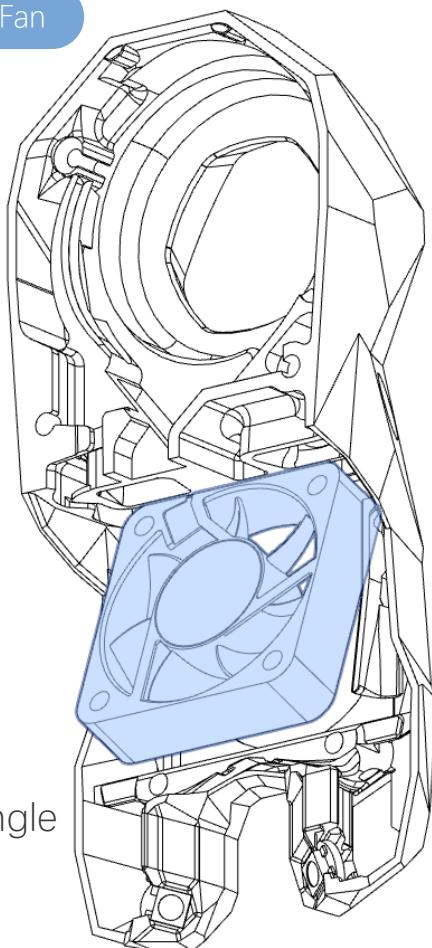
4010 Fan

FAN ORIENTATION

Rotate the fan so that the wires exit on the top and the air is pushed "inwards".

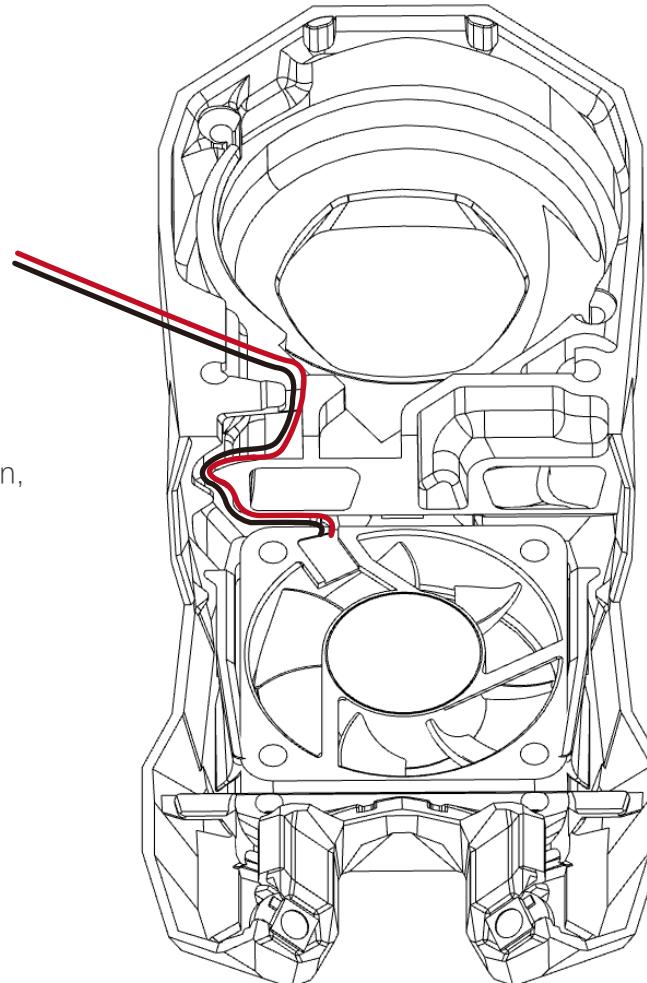
FAN INSERTION

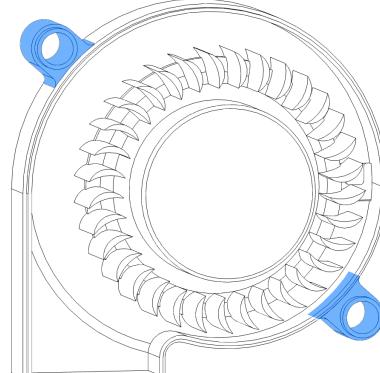
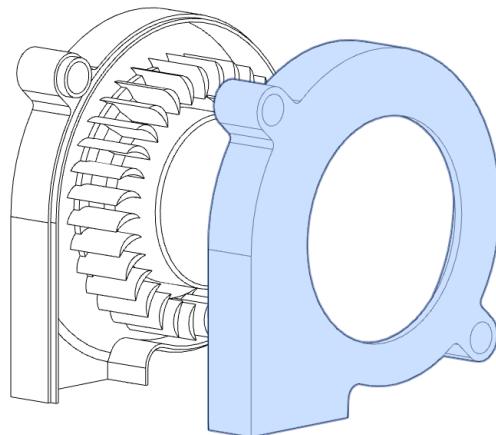
Insert the fan at a slight angle and clip it into place.
Mind the fan orientation.



FAN WIRE ROUTING

Route the fan wires as shown,
exiting on the right side





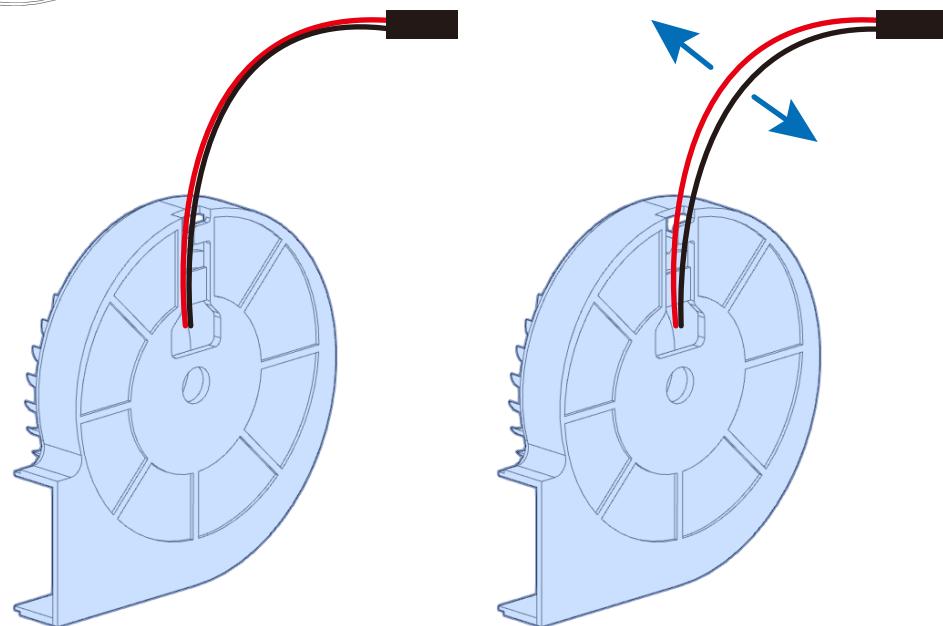
5015 Blower

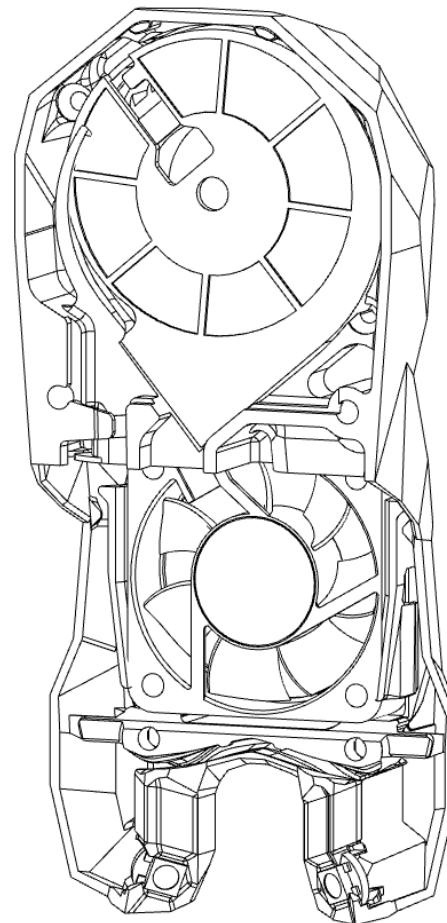
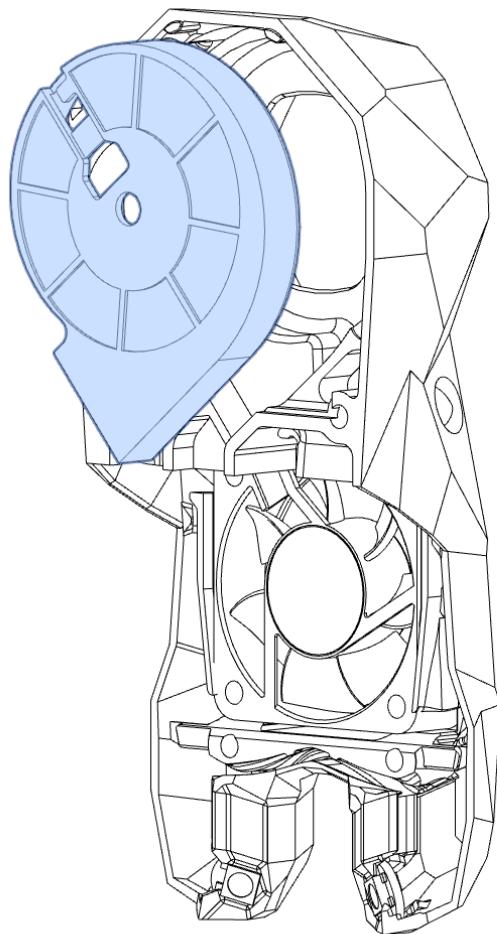
FAN PREPARATION

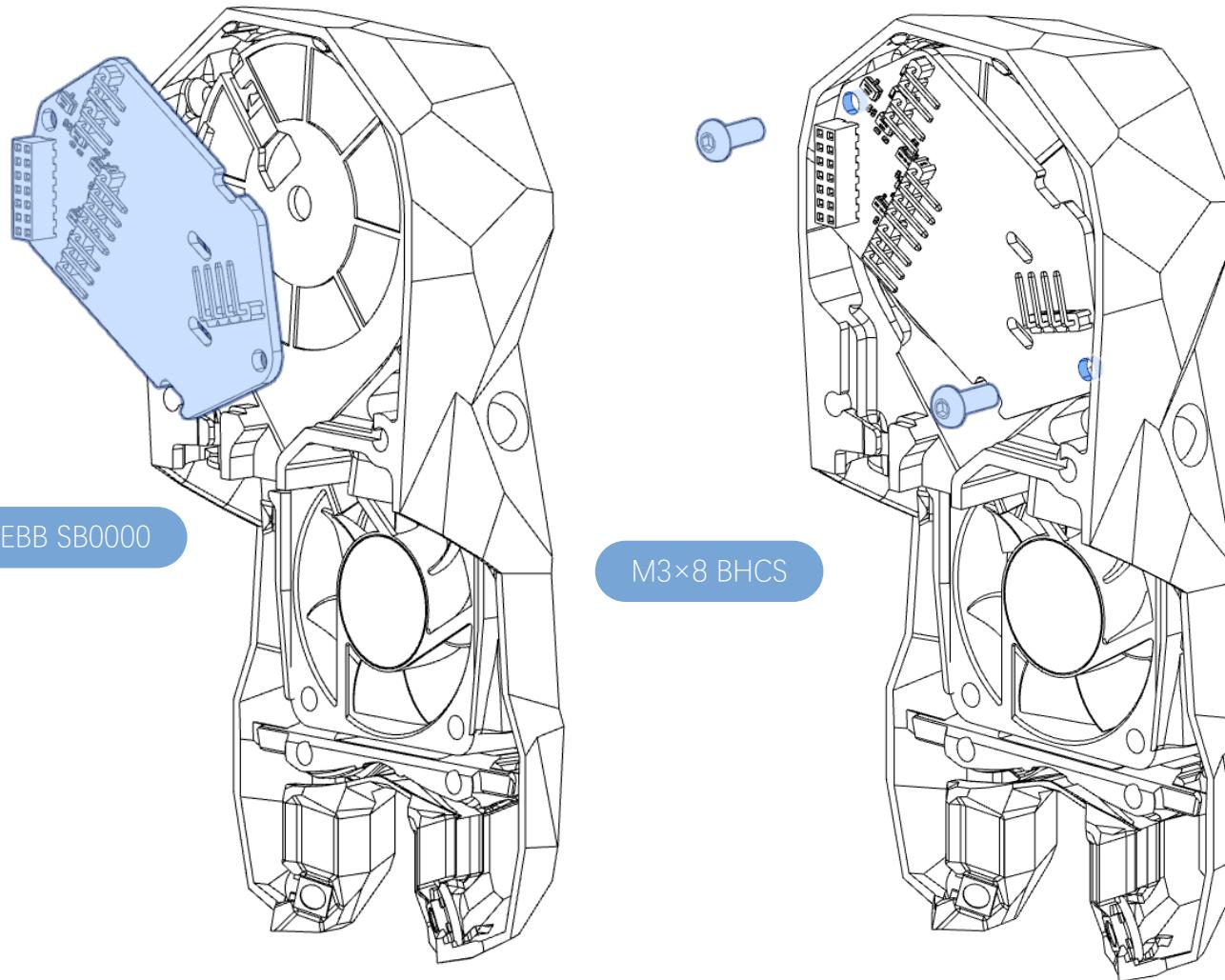
Remove the front of the 5015 fan. Clip off and file down the stock mounting ears.

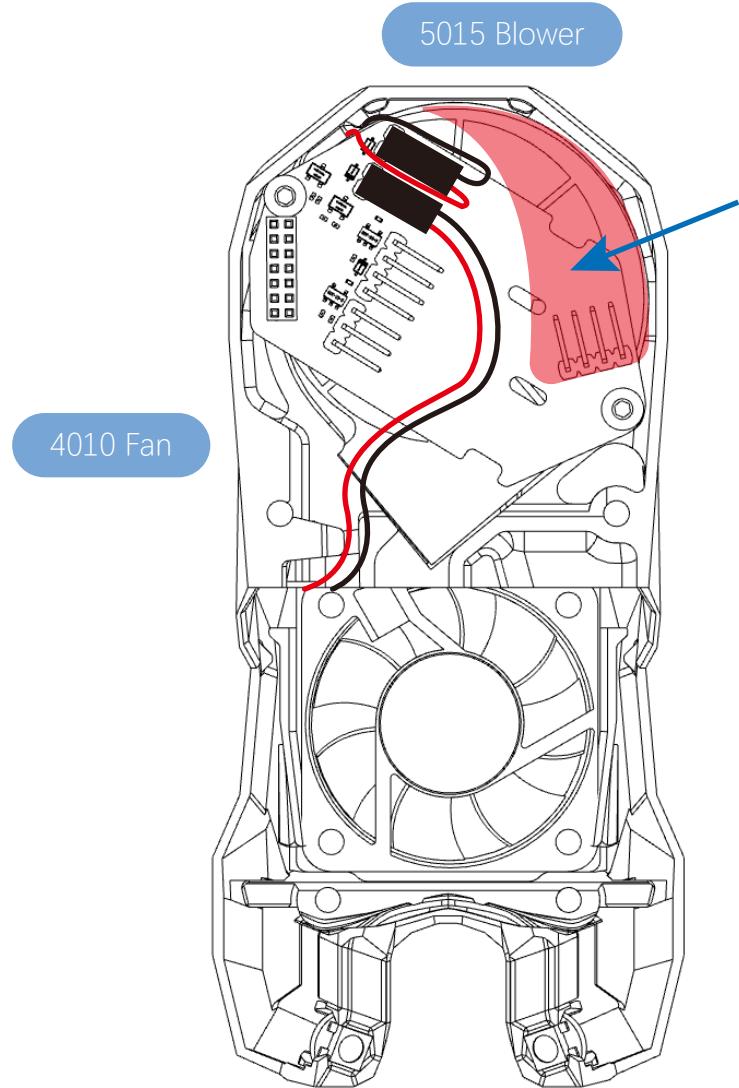
5015 Blower Wiring Instructions

The 5015 blower has very tightly designed cable lengths.
Separating the two wires in the middle before
installation will help with our wiring.









Reason for Tightly Designed Cables

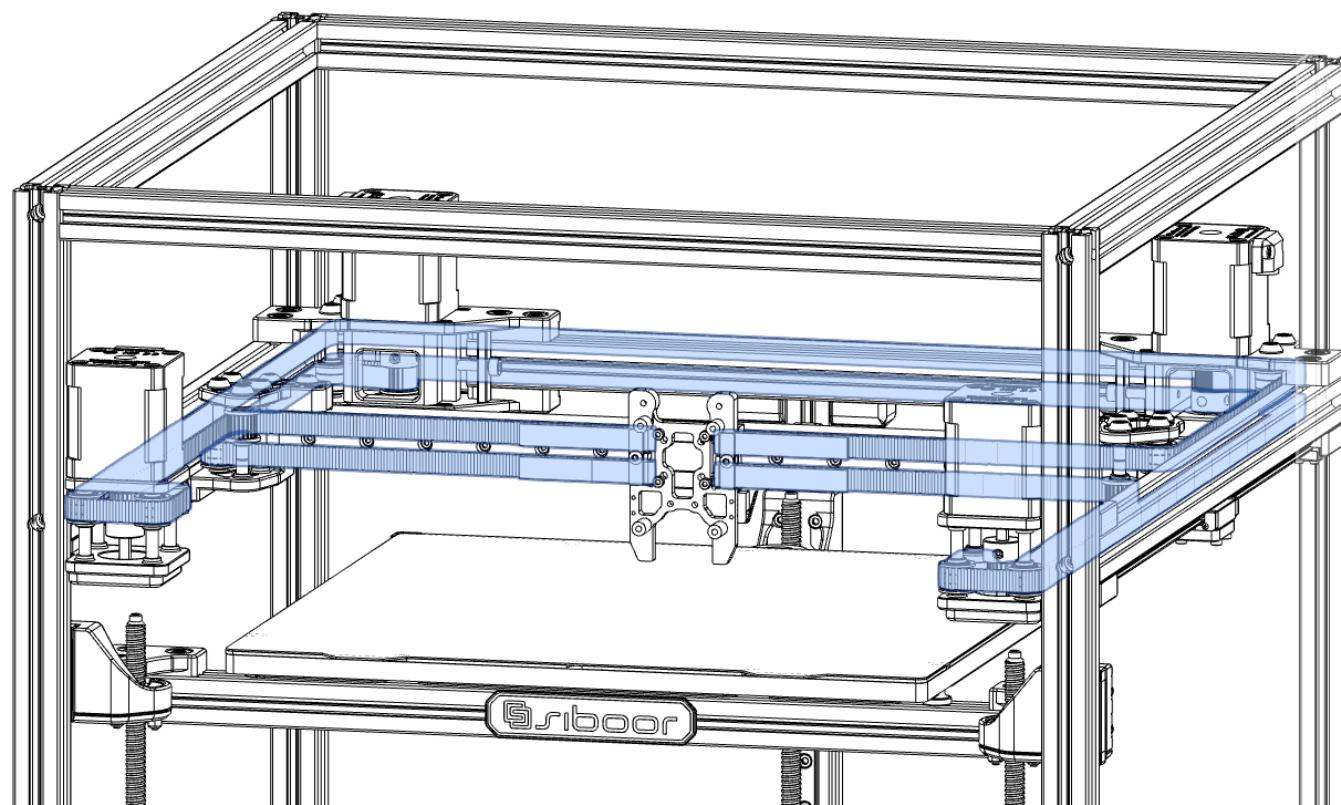
The cables are designed to be so compact to effectively prevent the Cartographer's four cables and the 5015 blower cables from overlapping. This ensures that the faceplate and the CW2 extruder can be properly aligned.

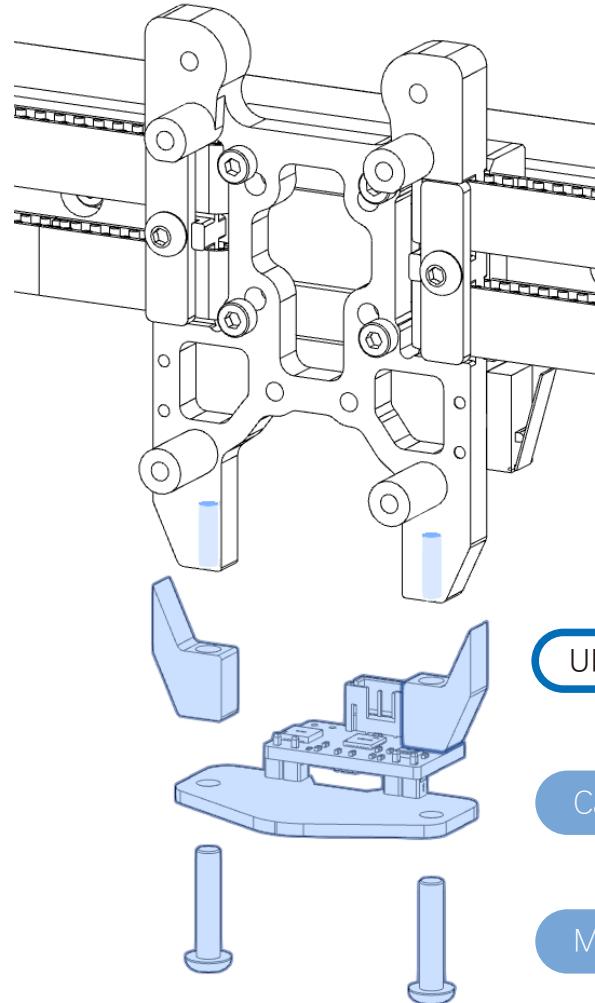
Optimized Instructions for Printer Maintenance

Returning to the printer, you may notice that after a period of pre-tensioning, the timing belts have become quite loose.

This is because the tension has now been evenly distributed.

Re-tighten the belts before proceeding with the next steps.

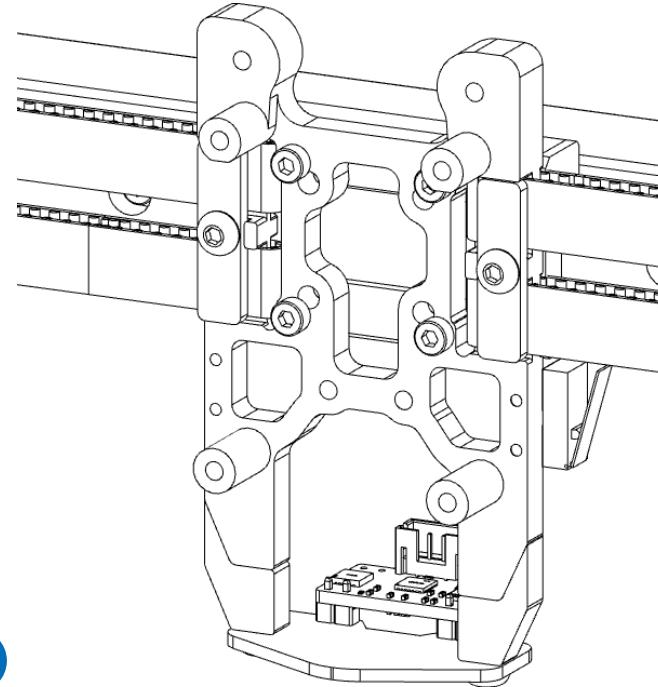


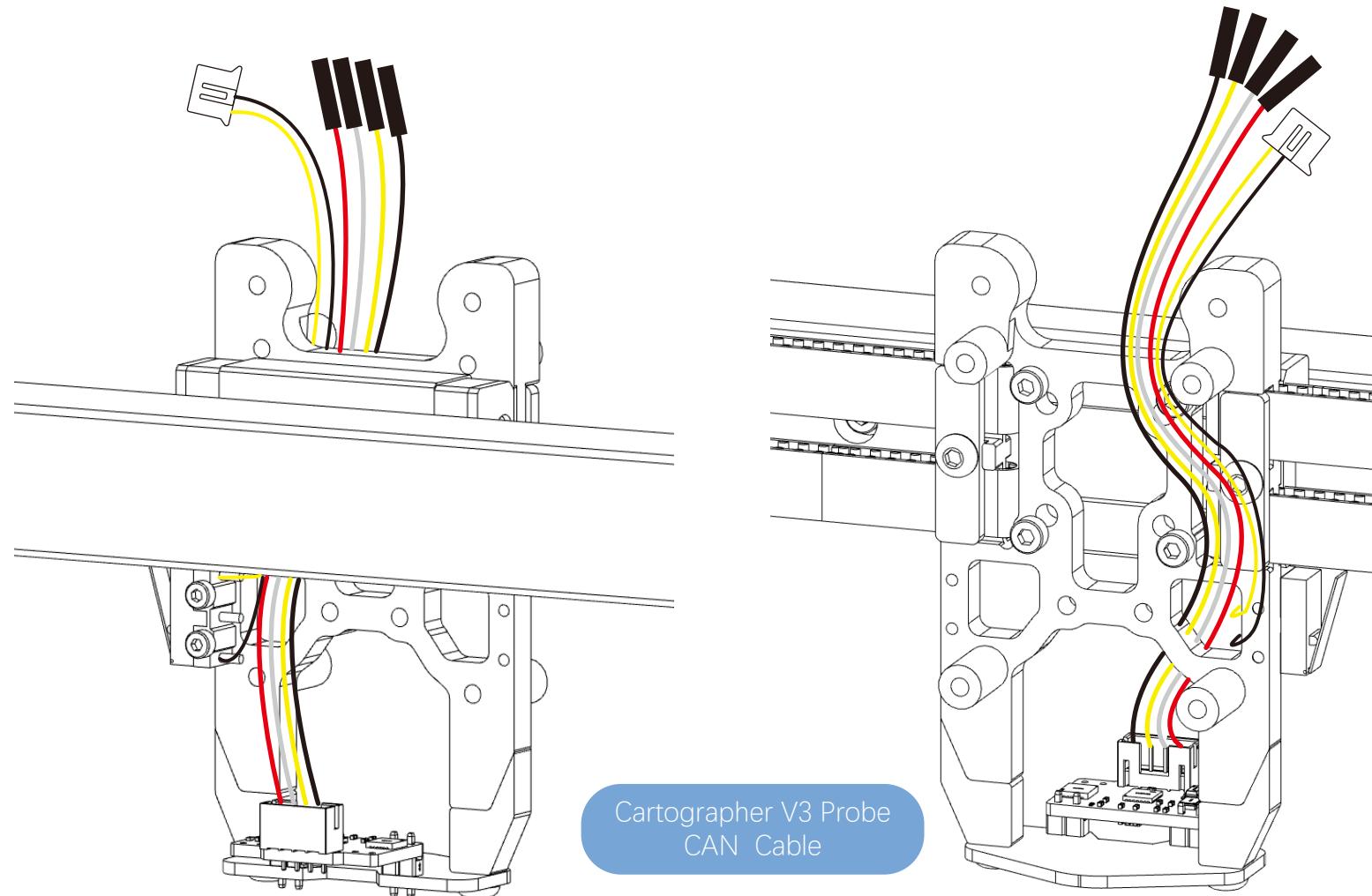


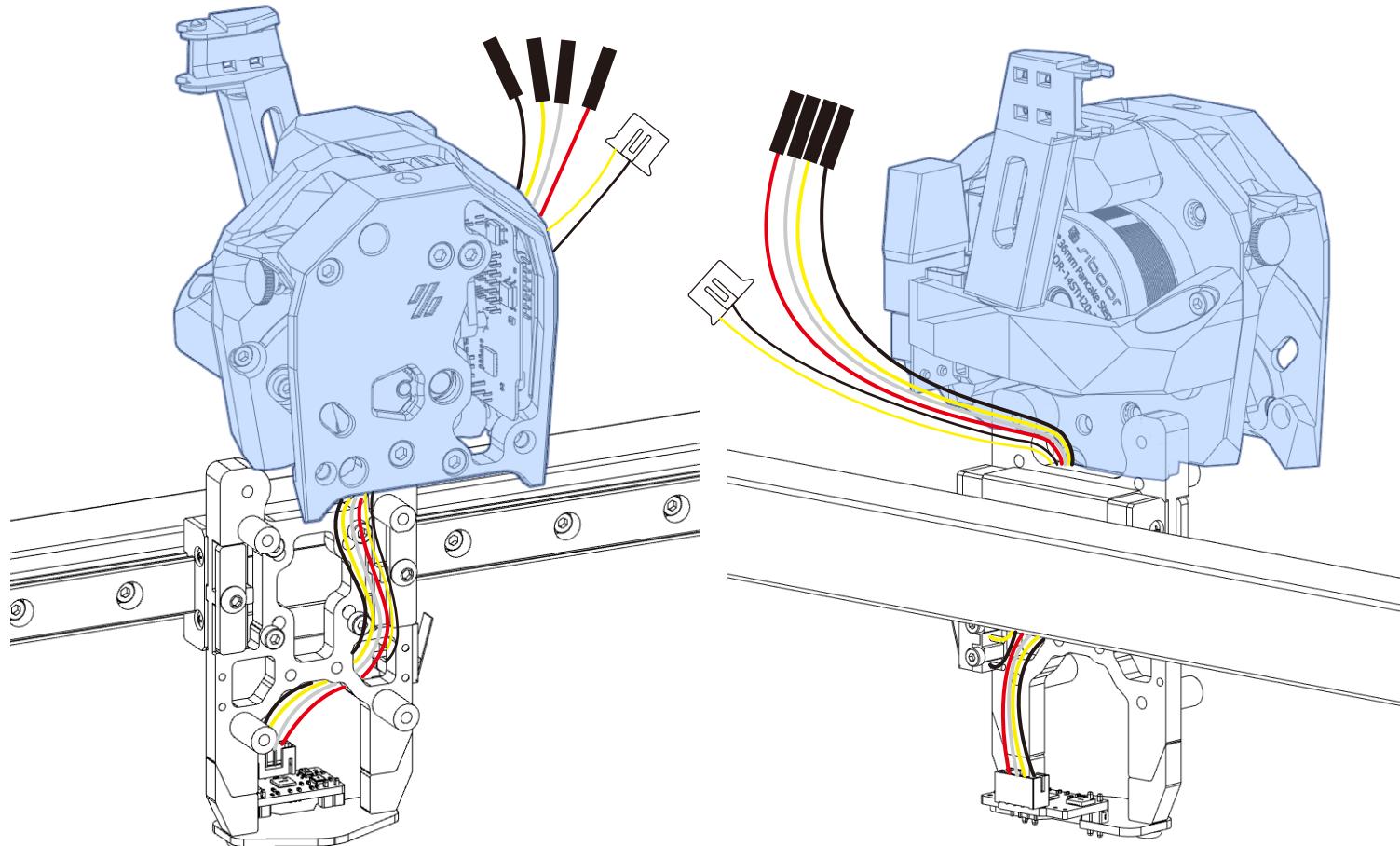
UHF Extension Block

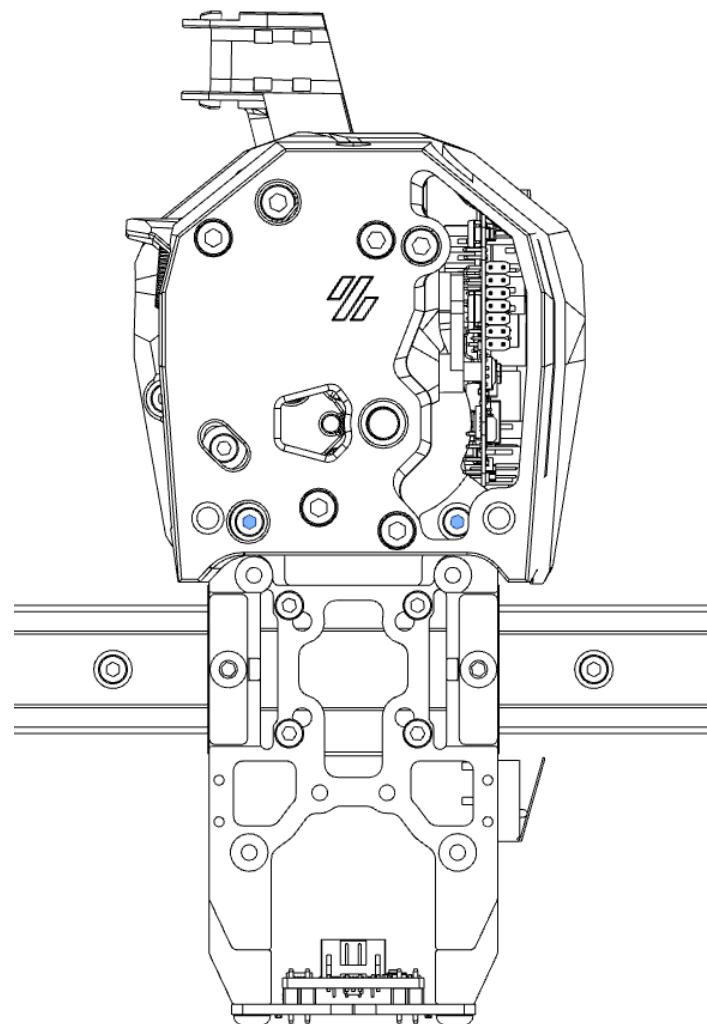
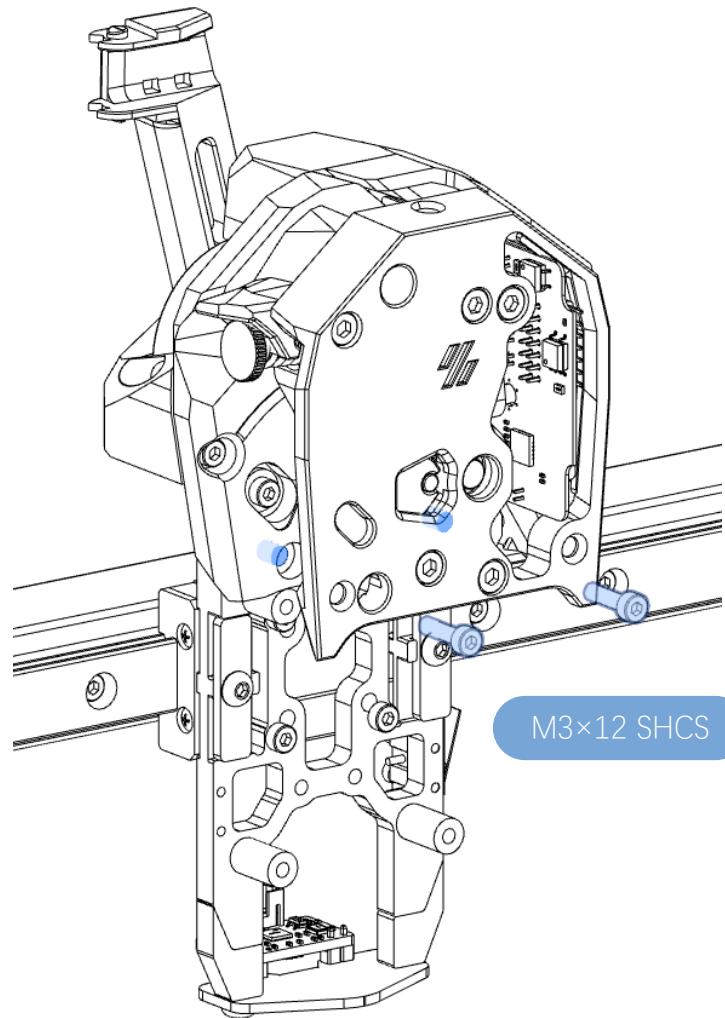
Cartographer V3 Probe

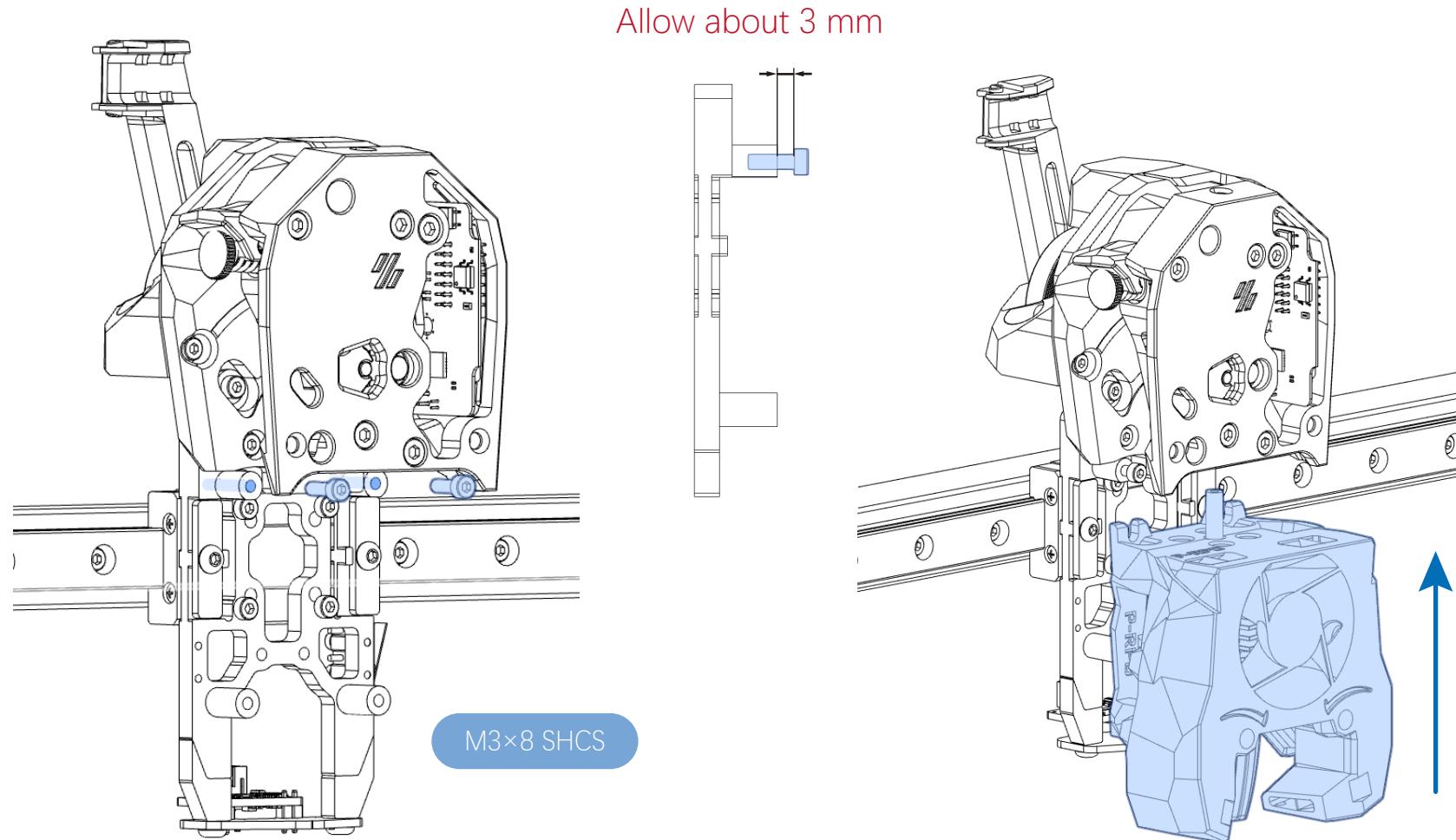
M3×12 BHCS

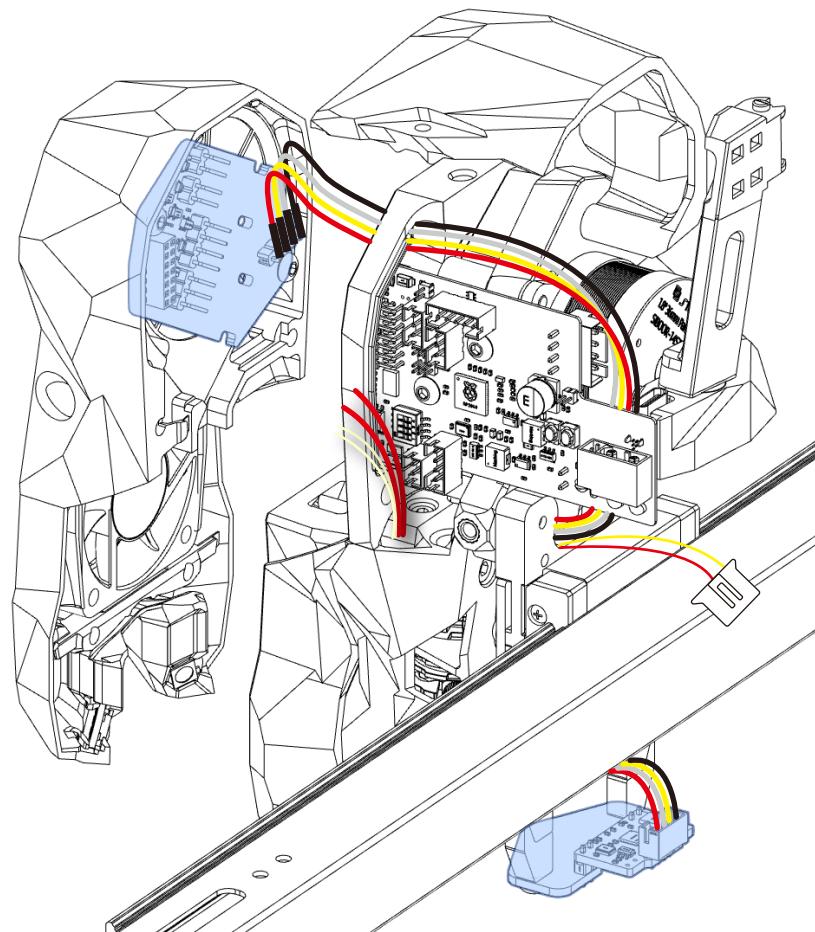
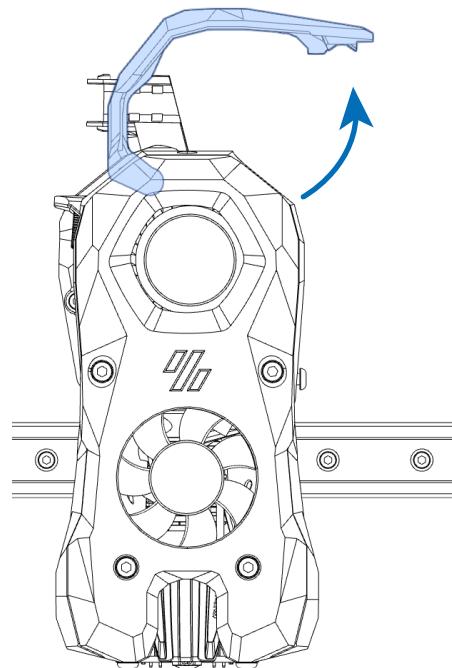


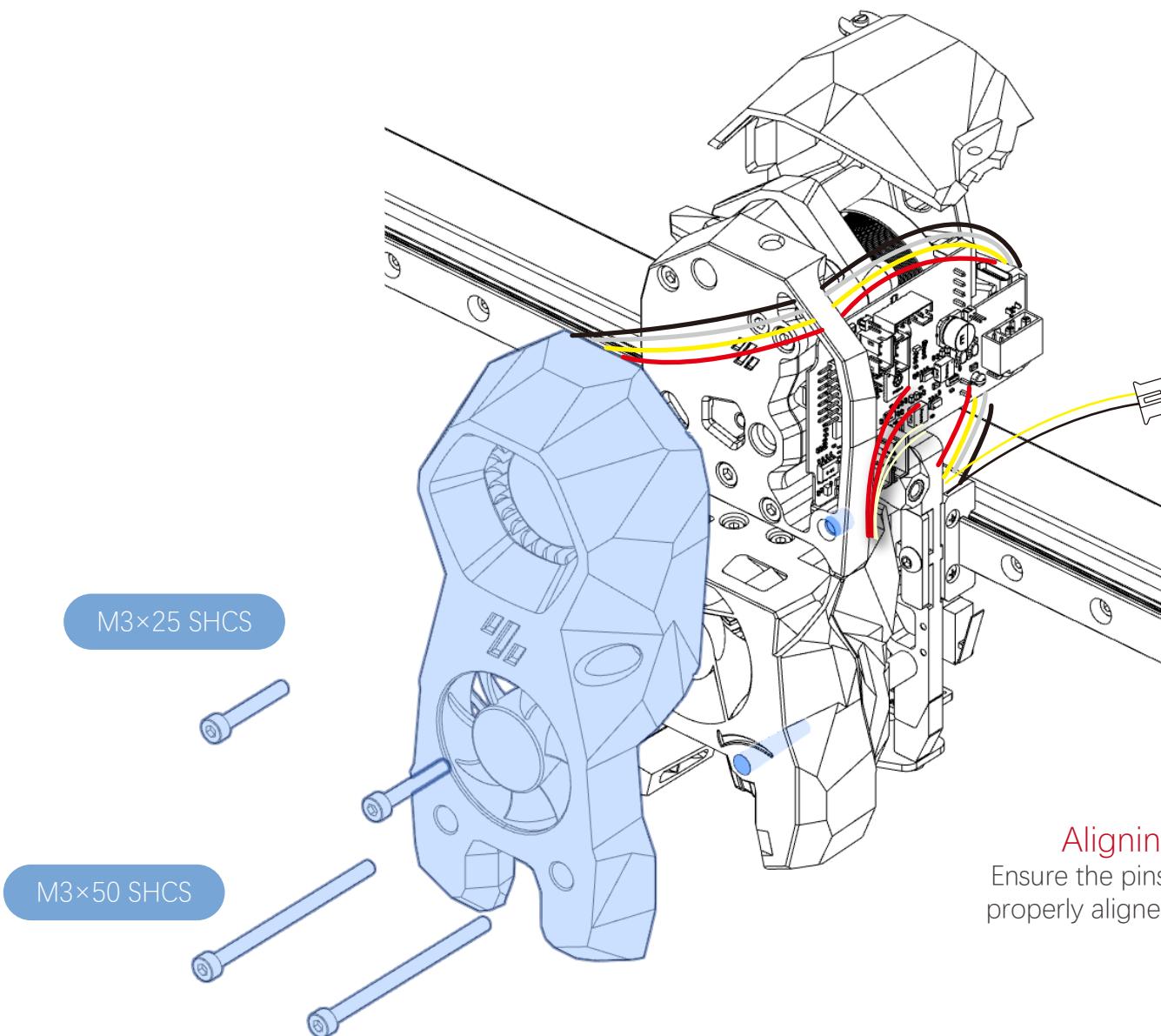












Aligning EBB CAN Board Pins

Ensure the pins of the EBB CAN board are properly aligned to avoid any short circuits.

