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-

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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.

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)

MATERIAL
ABS

LAYER HEIGHT
Recommended: 0.2mm

EXTRUSION WIDTH
Recommended: Forced 0.4mm

INFILL TYPE
Grid, Gyroid, Honeycomb, Triangle or Cubic

INFILL PERCENTAGE
Recommended: 40%

WALL COUNT
Recommended: 4

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.

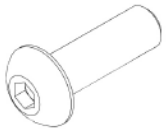
QUANTITY REQUIRED

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.

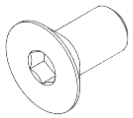
*The prefix "[Two-color]" indicates that the STL file requires printing with two different colors of ABS filament.

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.

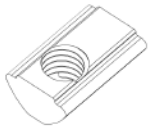


FLAT HEAD COUNTERSUNK BOLT (FHCS)

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

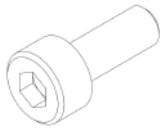
HEX NUT

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".

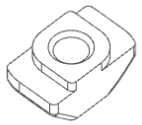


SOCKET HEAD CAP BOLT (SHCS)

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

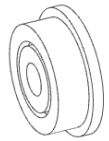
Nut that can be inserted into the slot of an aluminium profile. Used exclusively for panel mounting, all other components use T-Slot nuts.

FLANGE NUT

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

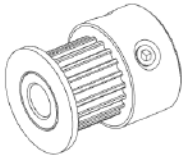
F695 BEARING

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



F623 BEARING

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

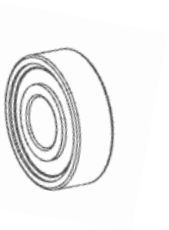


PULLEY

GT2 pulley used on the motion system of the Voron.

THUMB NUT

Used in the print bed as a spacer.

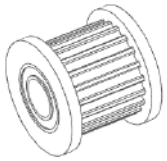


695 BEARING

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

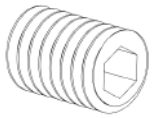
GE5C BEARING

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.



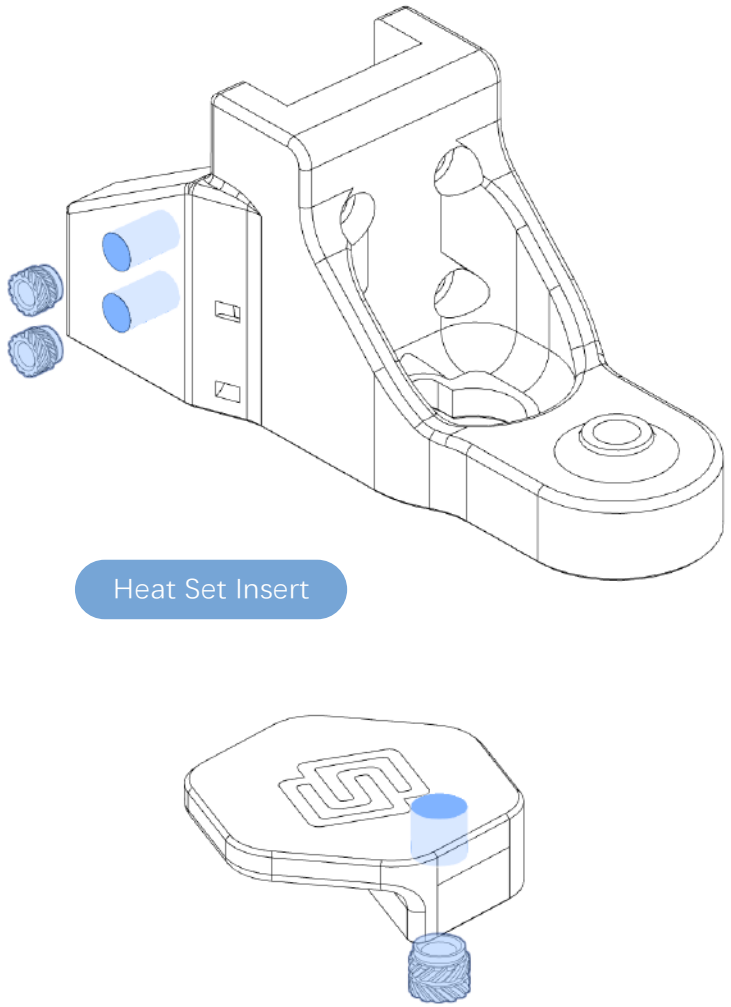
IDLER

GT2 idler used in the motion system of the Voron.



SET SCREW

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



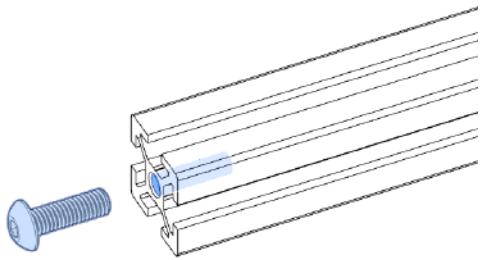
HEAT SET INSERTS

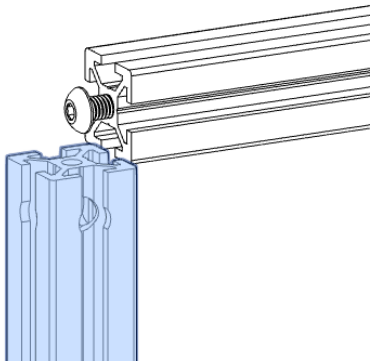
This design relies heavily on heat set inserts. Make sure you have the proper inserts (check the hardware reference for a close-up picture and the Sourcing Guide for dimensions).

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 76, 93, 125, 126,197,201,203,206,207

https://voron.link/m5ybt4d



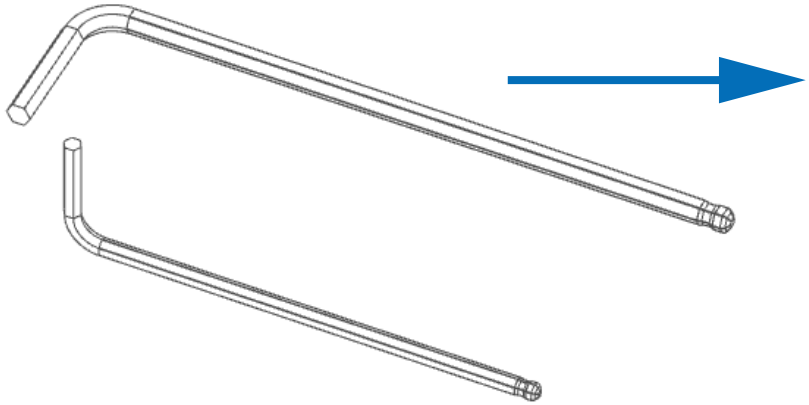


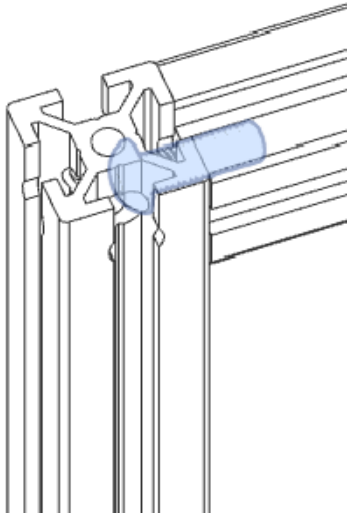
BLIND JOINT BASICS

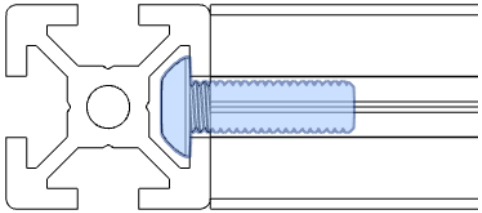
Blind Joints provide a cost effective and rigid assembly method

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

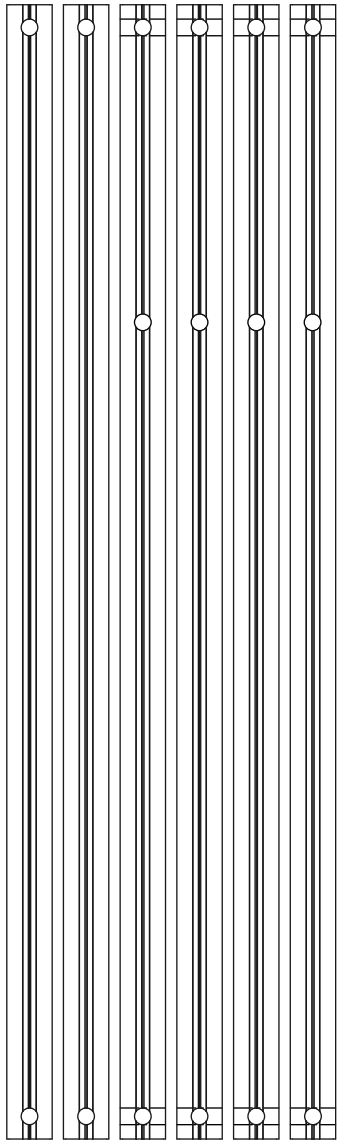
If you've never assembled one before we recommend you watch the linked guide.





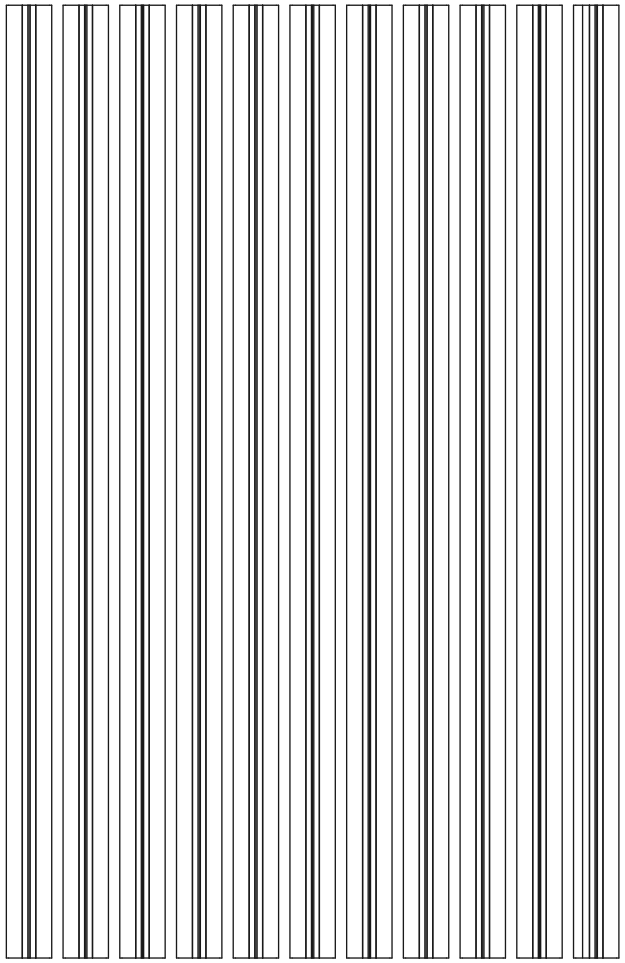


https://voron.link/onjwmcd



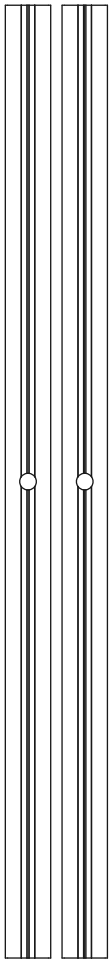
B Extrusion

500mm



A Extrusion

420mm / 470mm

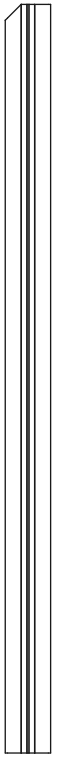


CF Extrusion

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

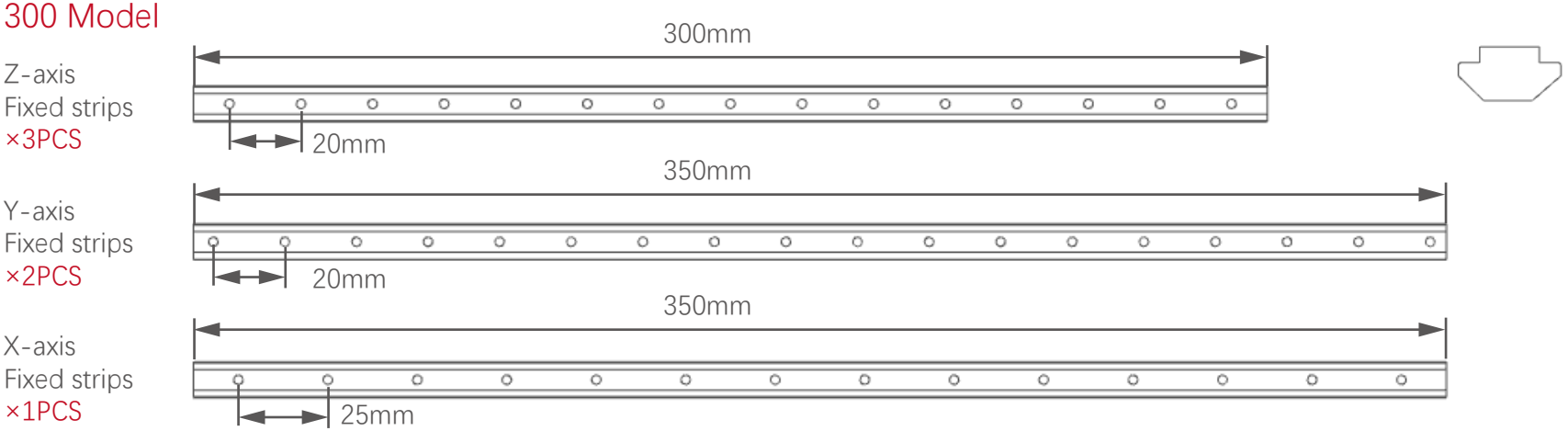
290mm / 340mm

G Extrusion

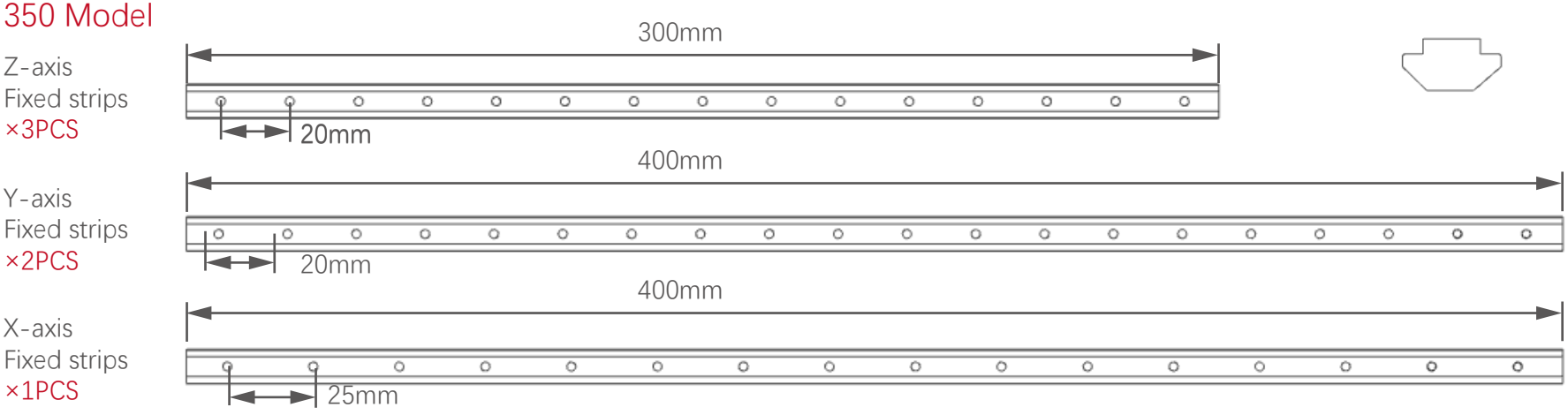
282mm / 332mm

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

300 Model

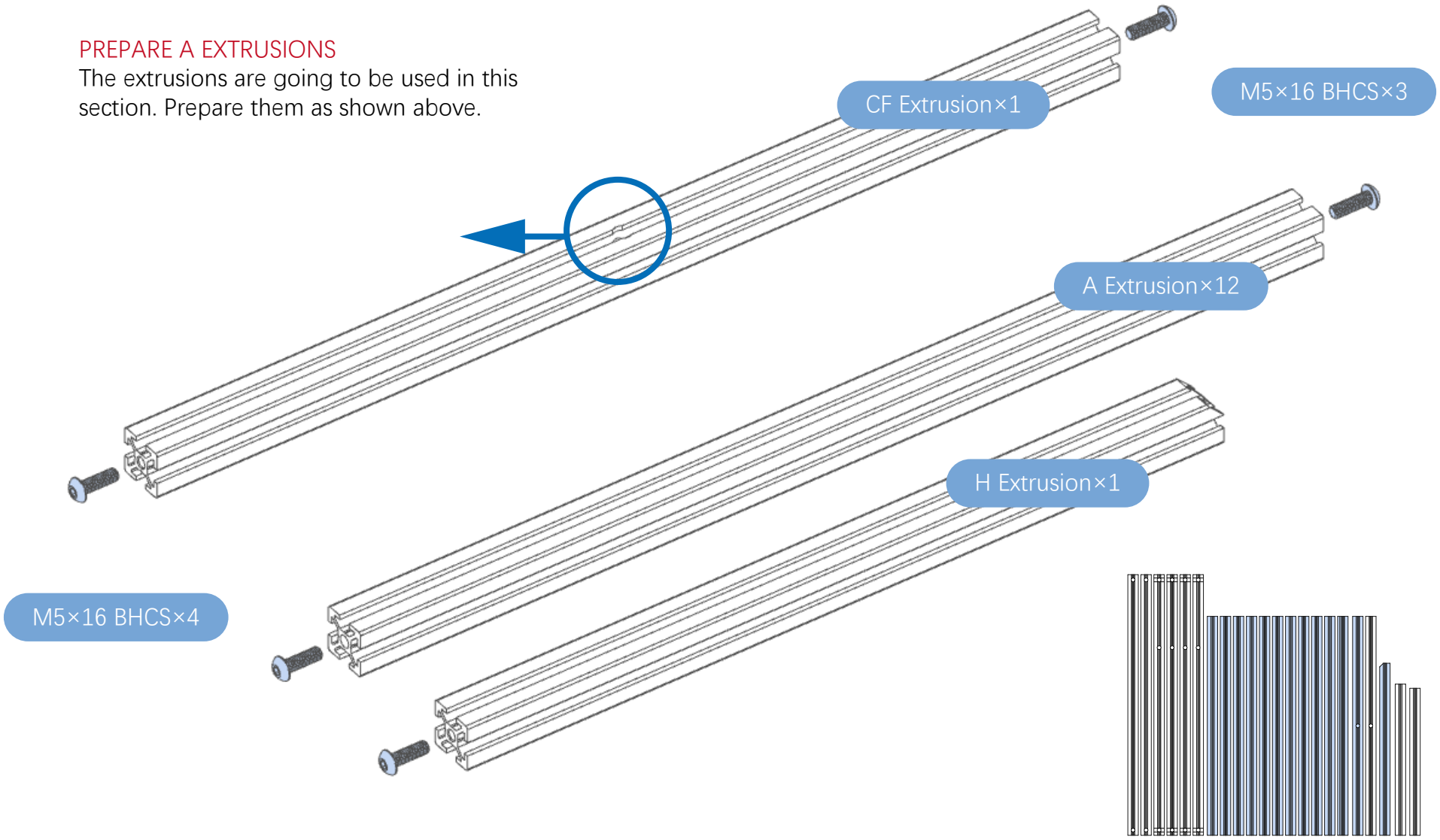


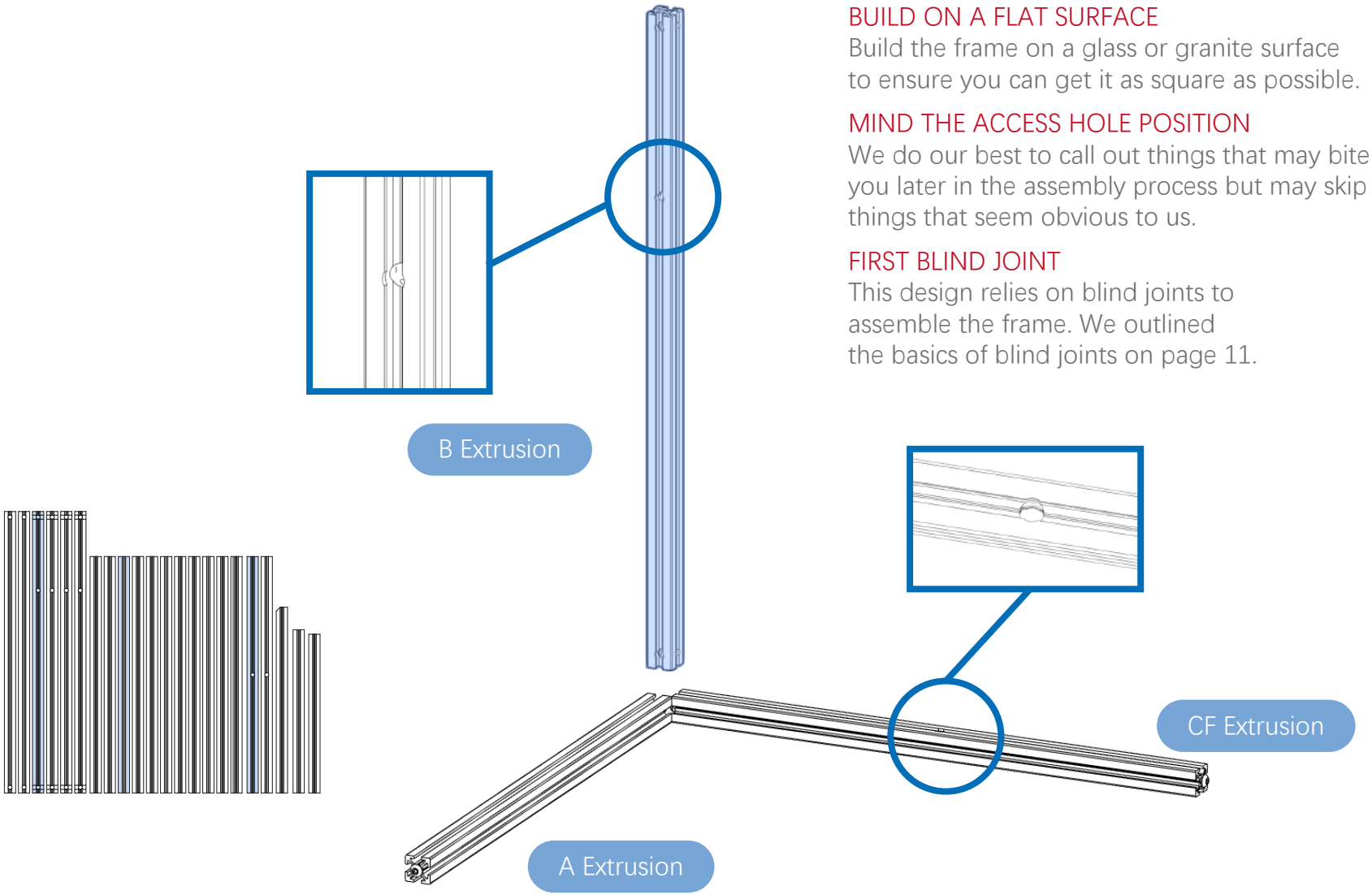
350 Model



PREPARE A EXTRUSIONS

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





BUILD ON A FLAT SURFACE

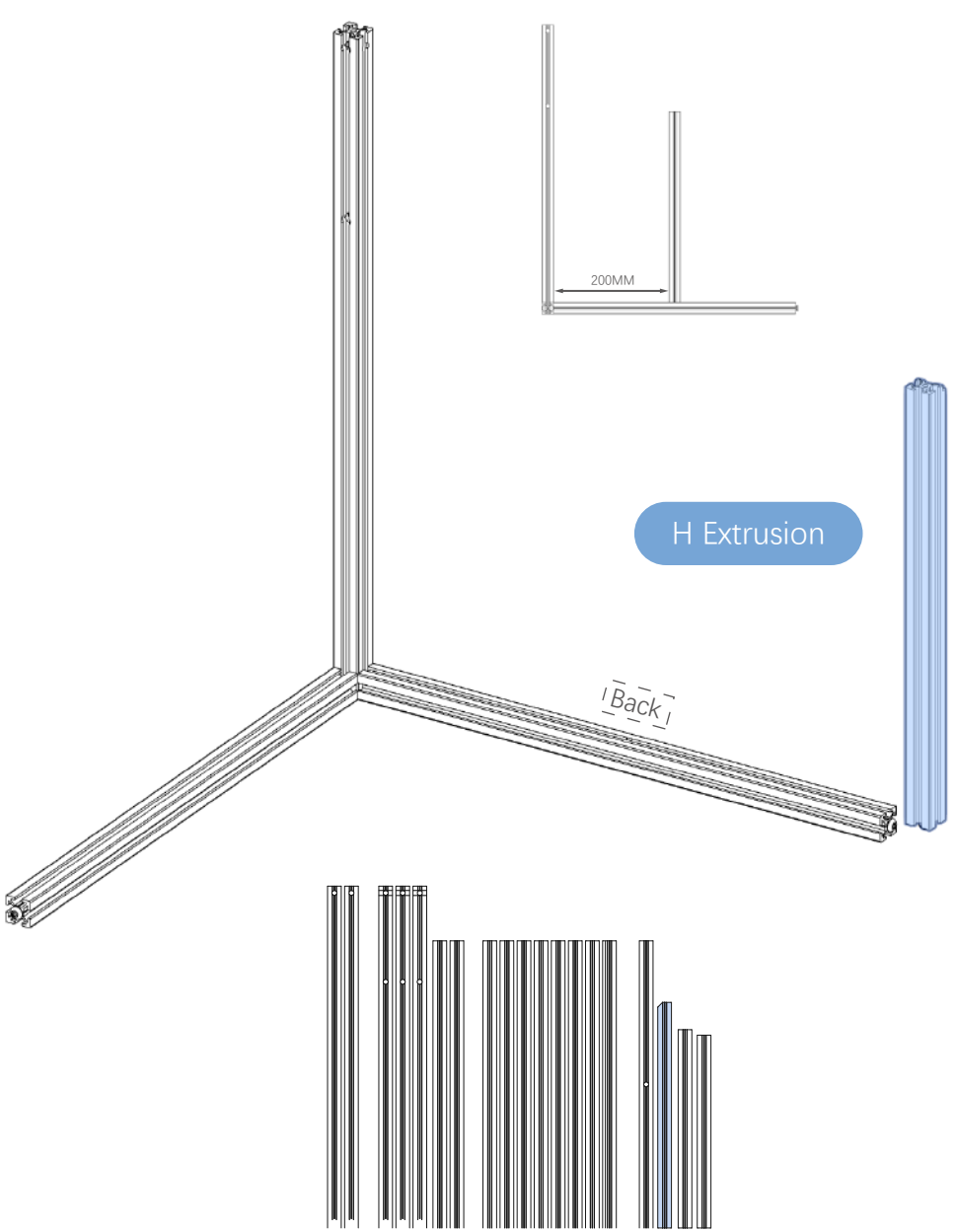
Build the frame on a glass or granite surface to ensure you can get it as square as possible.

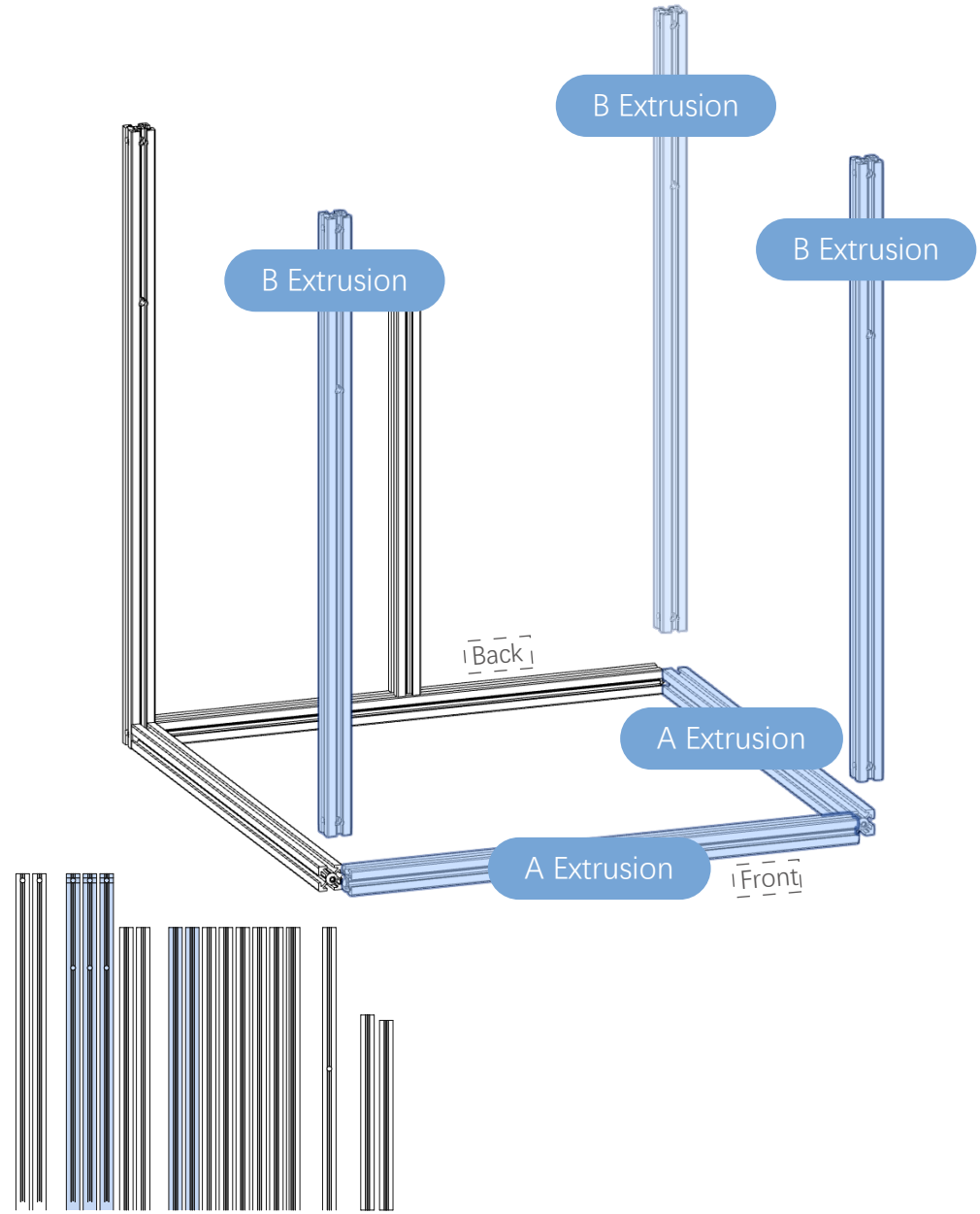
MIND THE ACCESS HOLE POSITION

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

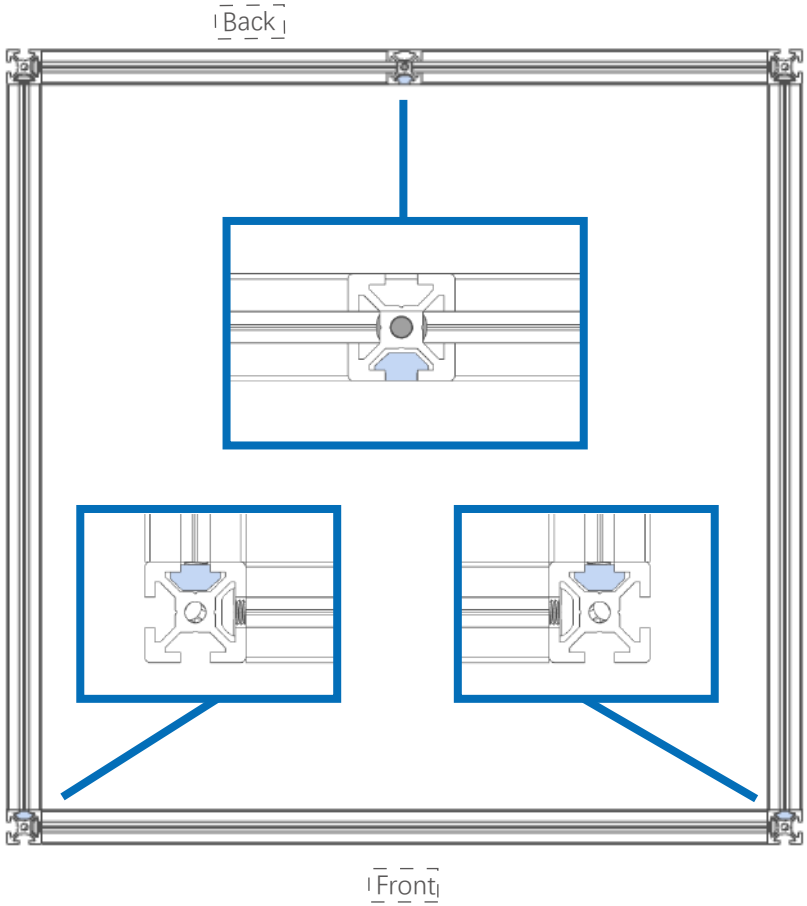
This design relies on blind joints to assemble the frame. We outlined the basics of blind joints on page 11.


200MM
H Extrusion
Back


B Extrusion
B Extrusion
B Extrusion
Back
A Extrusion
A Extrusion
Front

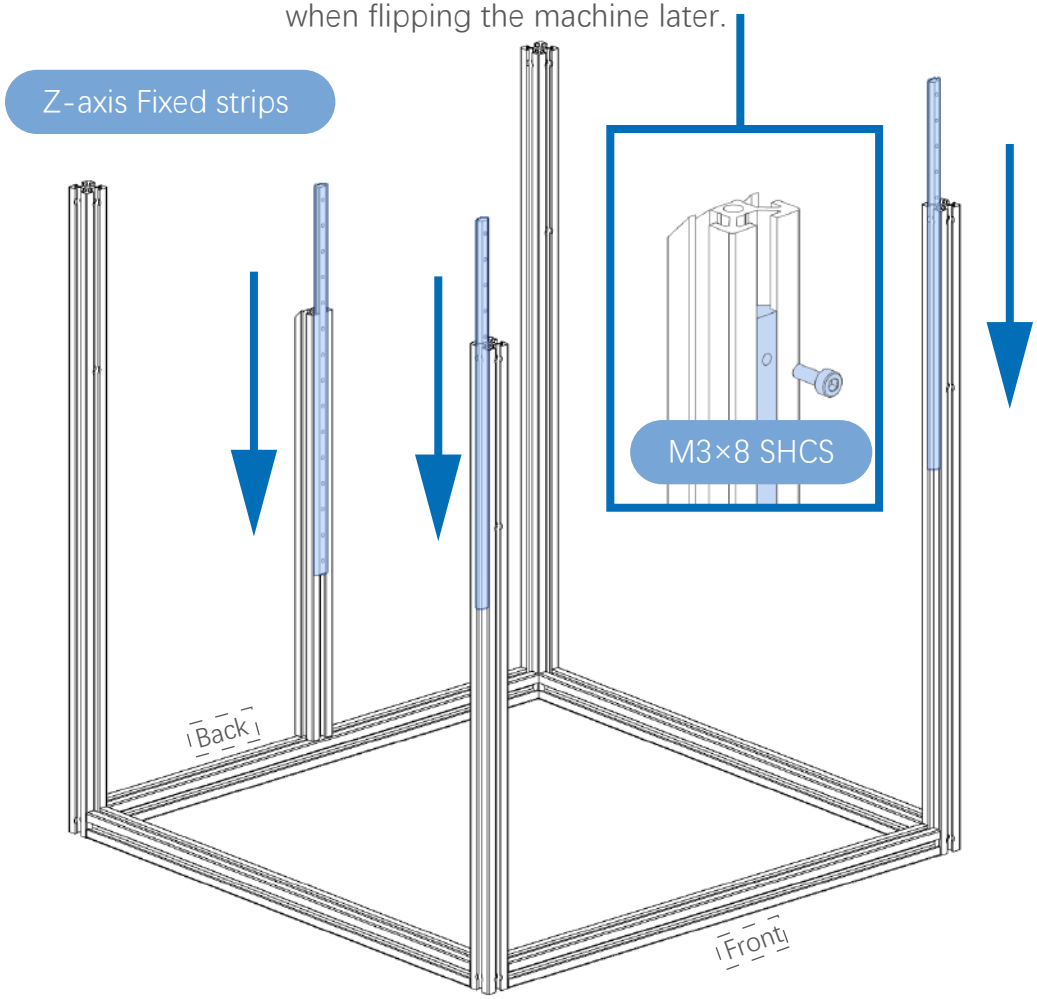
Insertion direction

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



Fixed strips

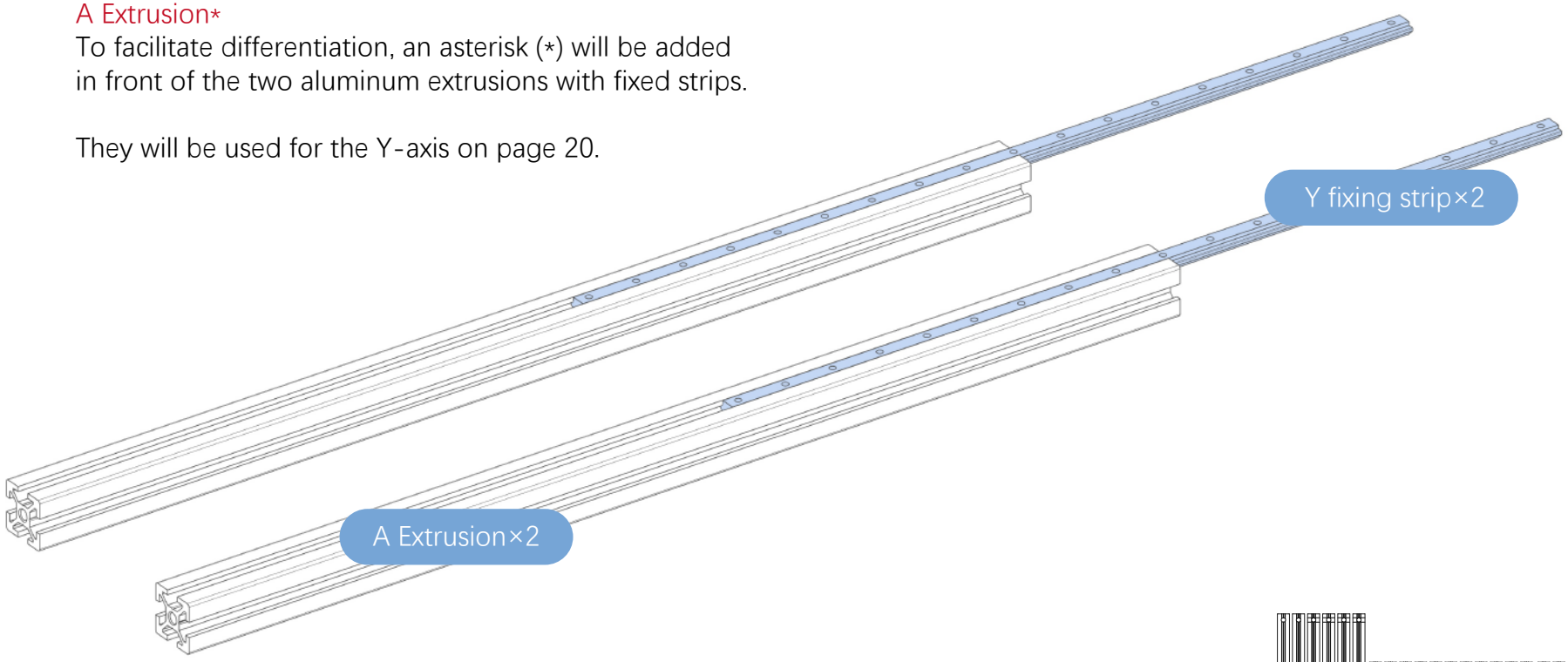
Push the three fixed strips into the deepest position
and temporarily secure each with a screw to prevent
the fixed strips from colliding with the aluminum extrusions
when flipping the machine later.

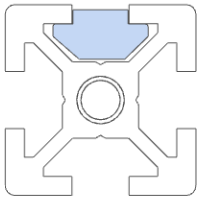


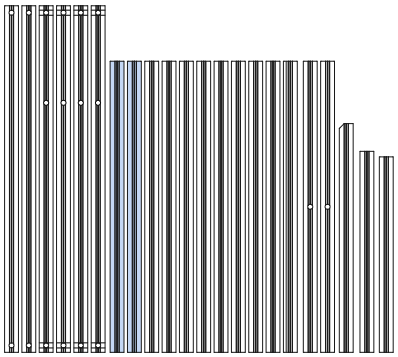
A Extrusion*

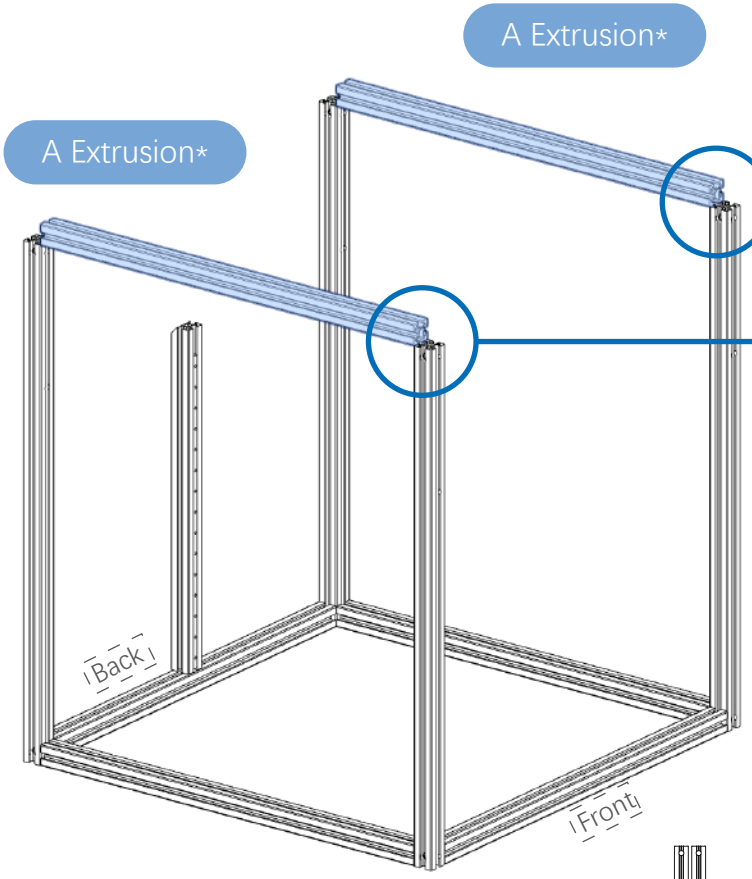
To facilitate differentiation, an asterisk (*) will be added in front of the two aluminum extrusions with fixed strips.

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

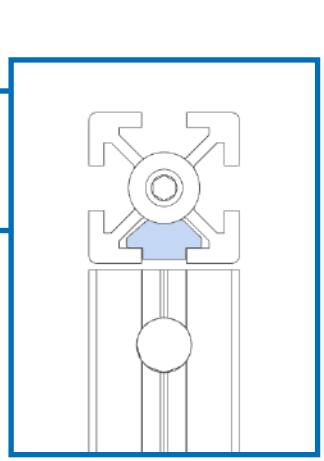


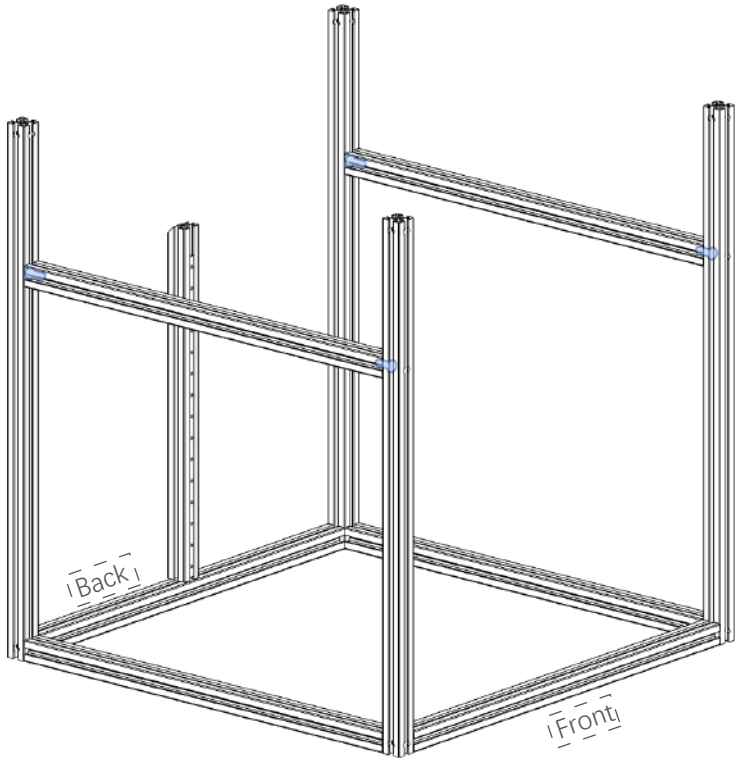


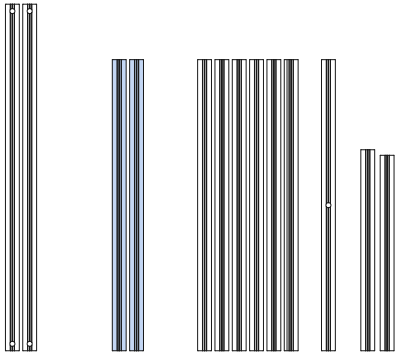




Ensure that the fixing strips inside the aluminum extrusions are facing downwards.



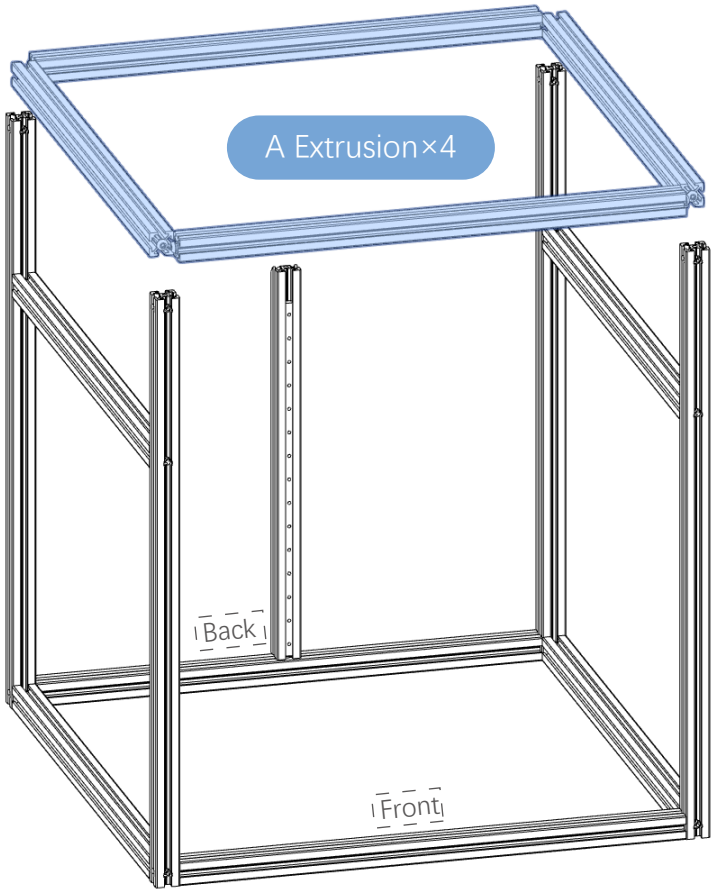


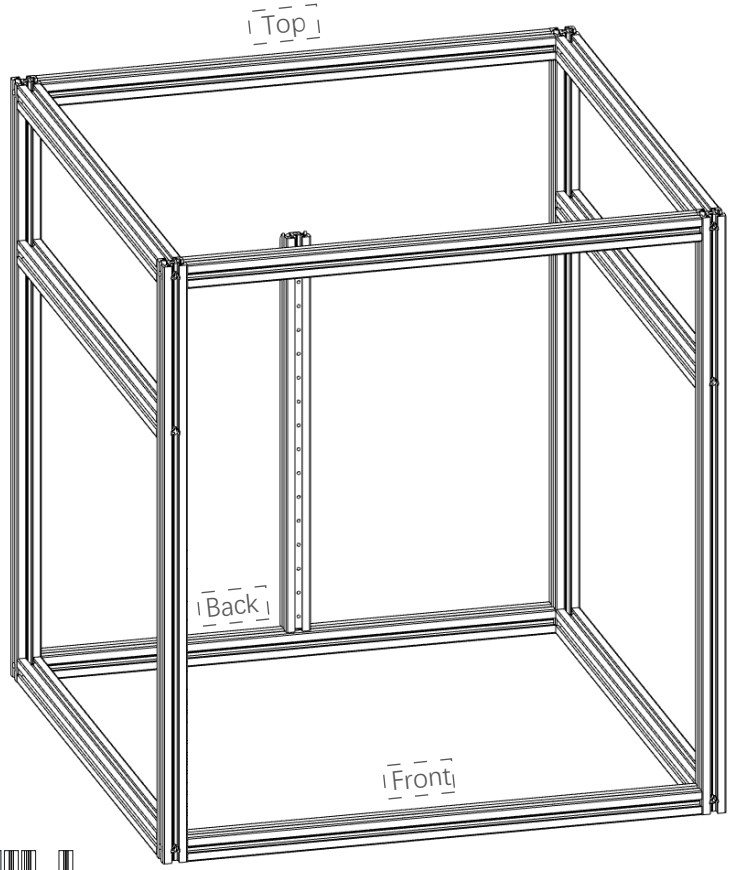


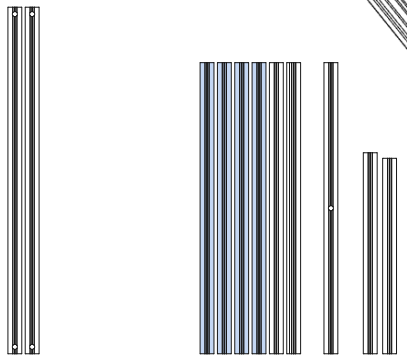
Tighten the screws with an Allen wrench.

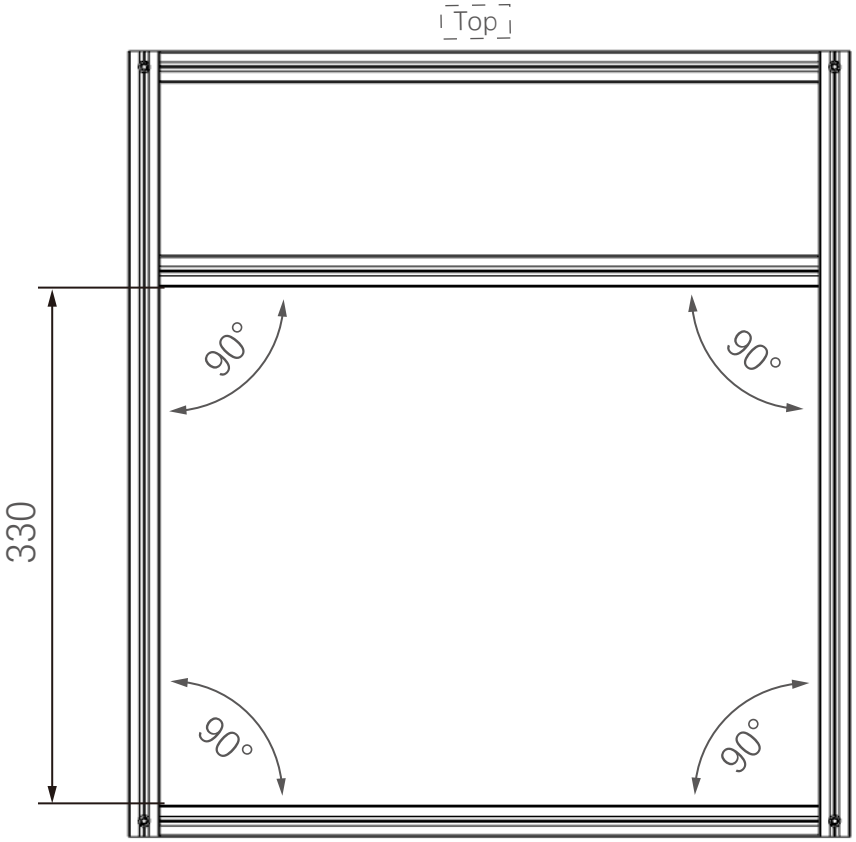
A Extrusion* ?

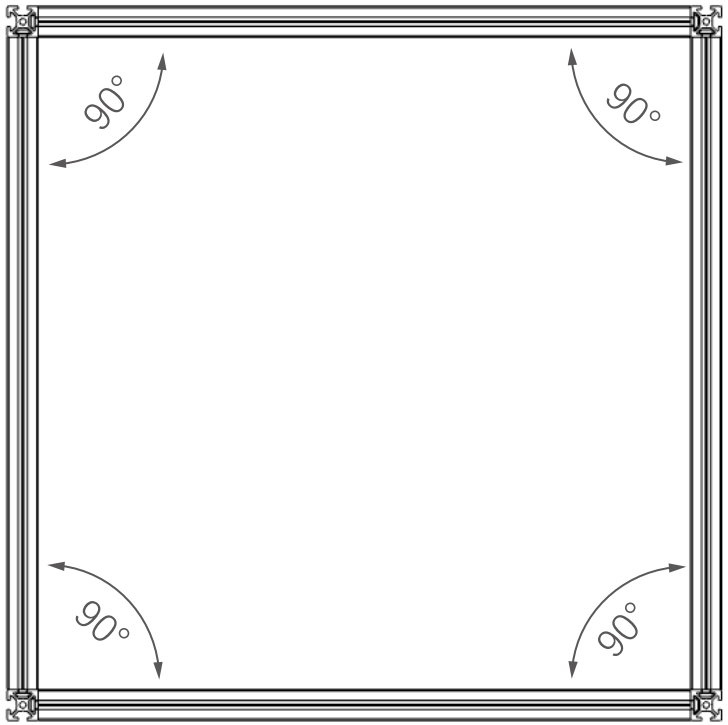
Remember, on page 19,
these two aluminum extrusions were fitted with fixing strips and labeled as A Extrusion*.


A Extrusion×4
Back
Front


Top
Back
Front

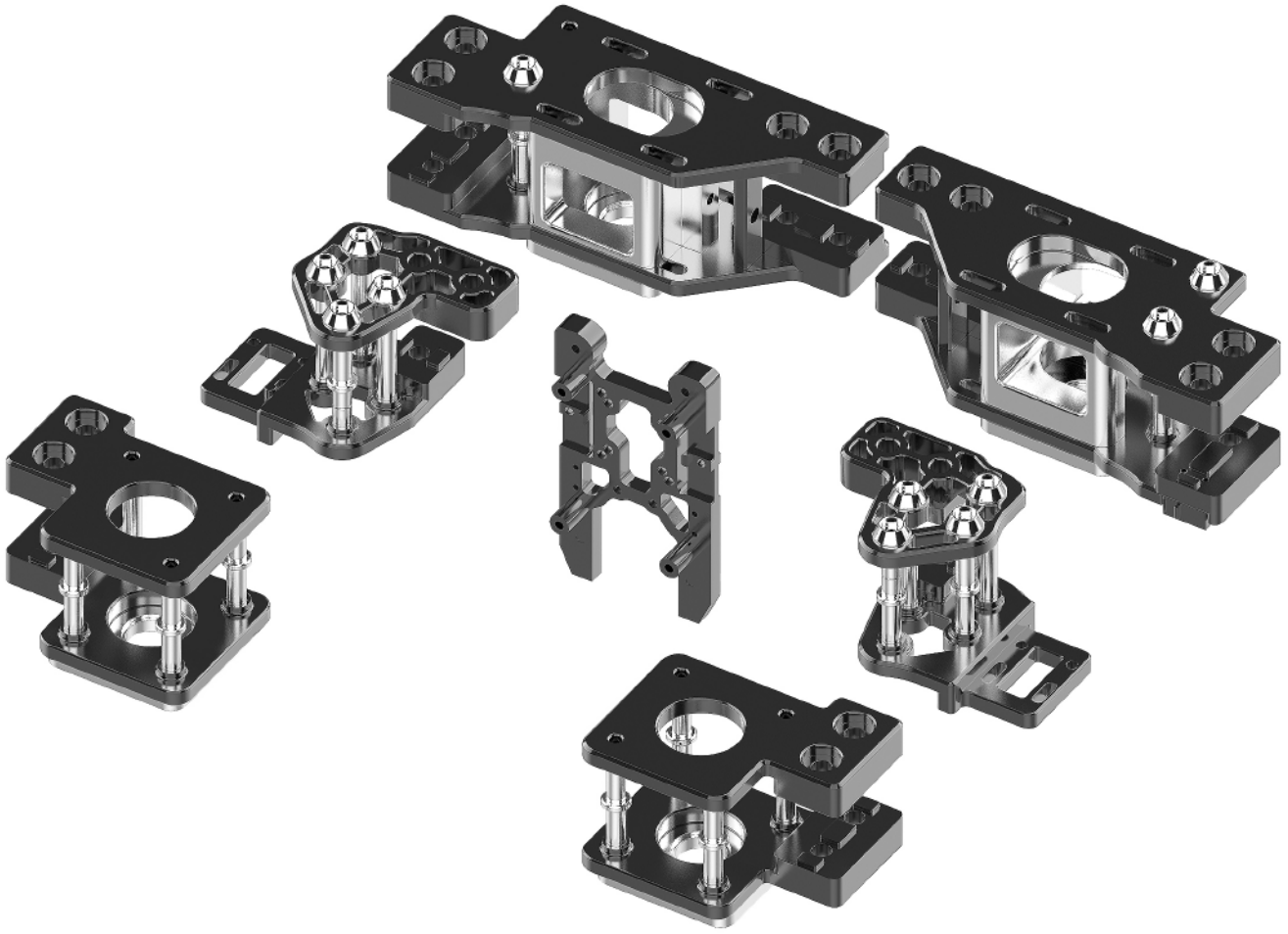


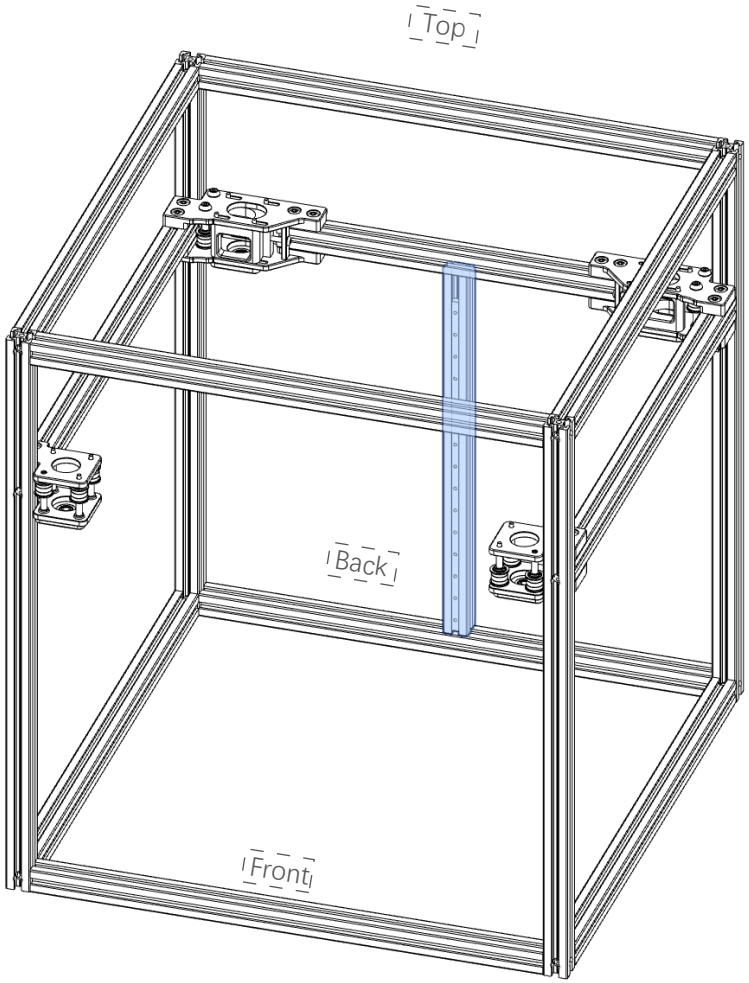


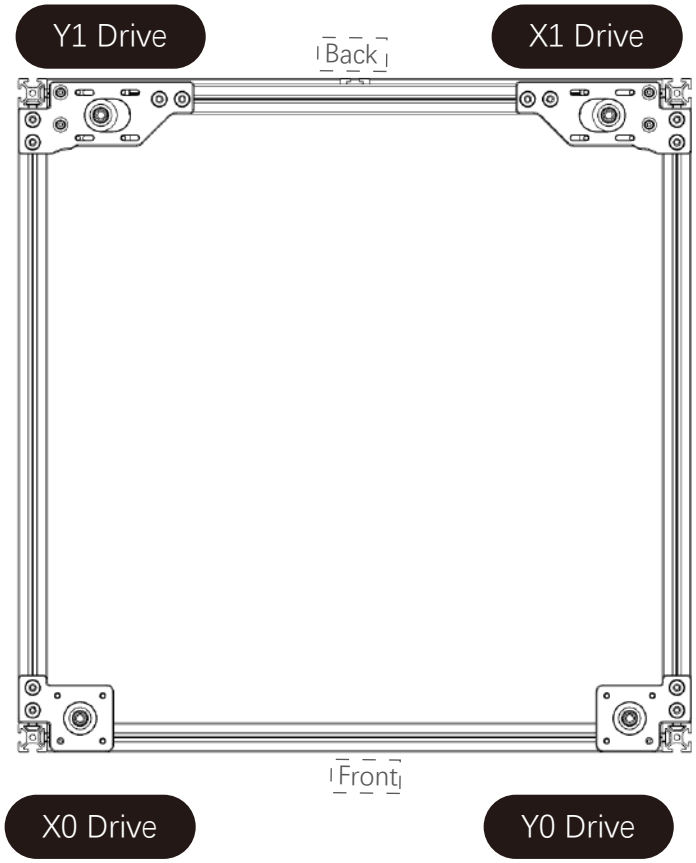


https://voron.link/kdtpzam

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.





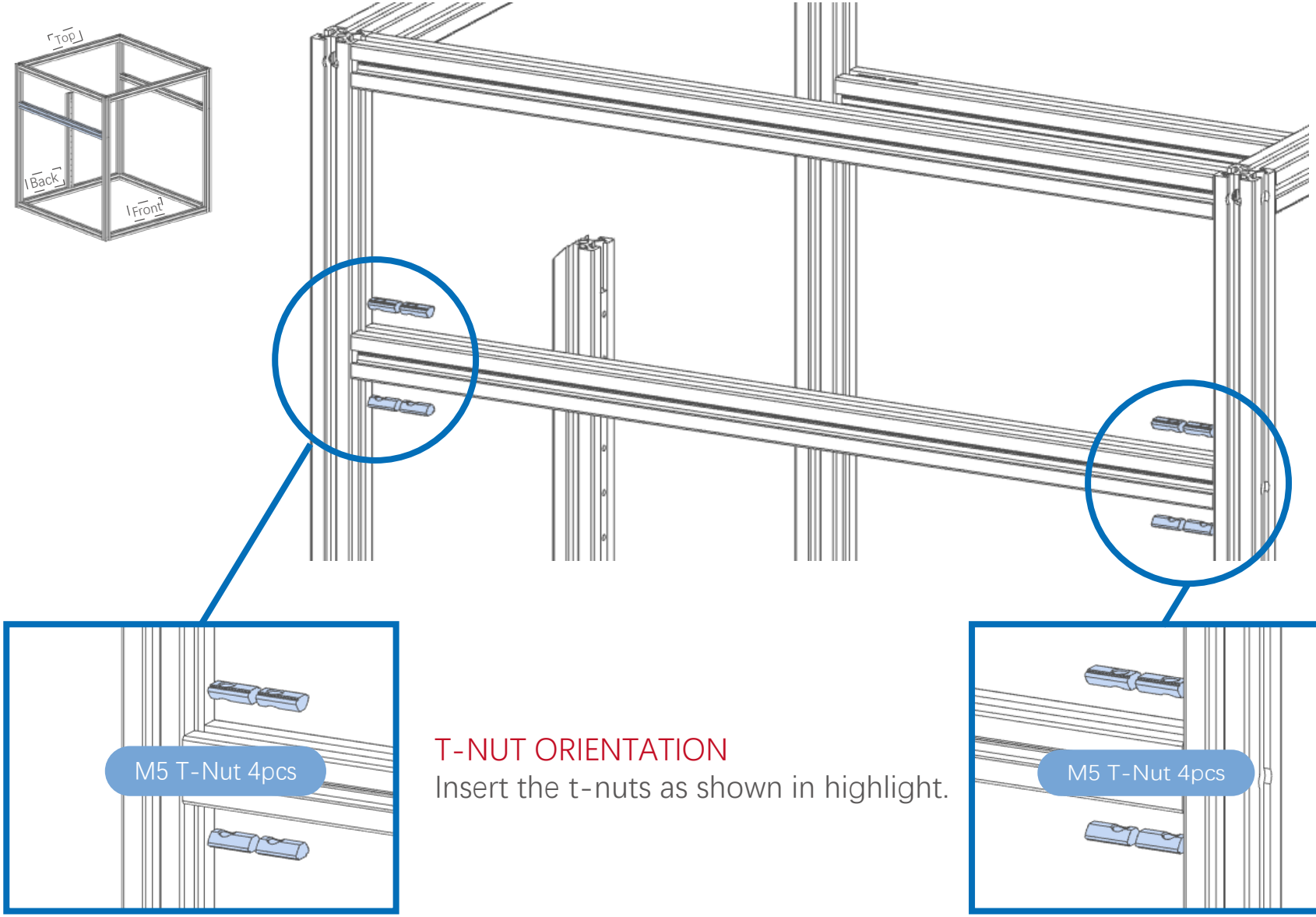


WHY IS THIS HERE?

As you likely skipped over the advice to fip 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.

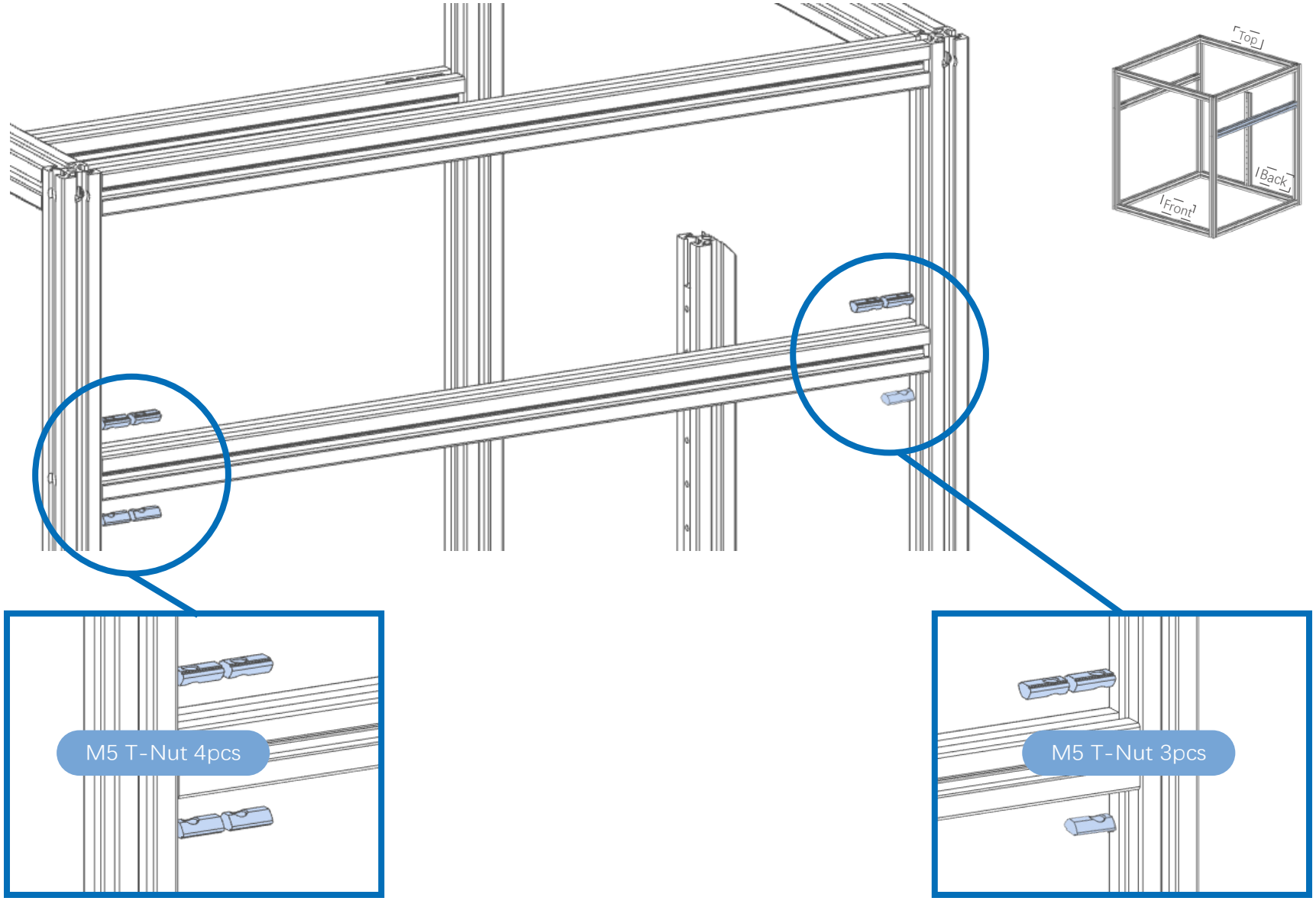
OVERVIEW

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



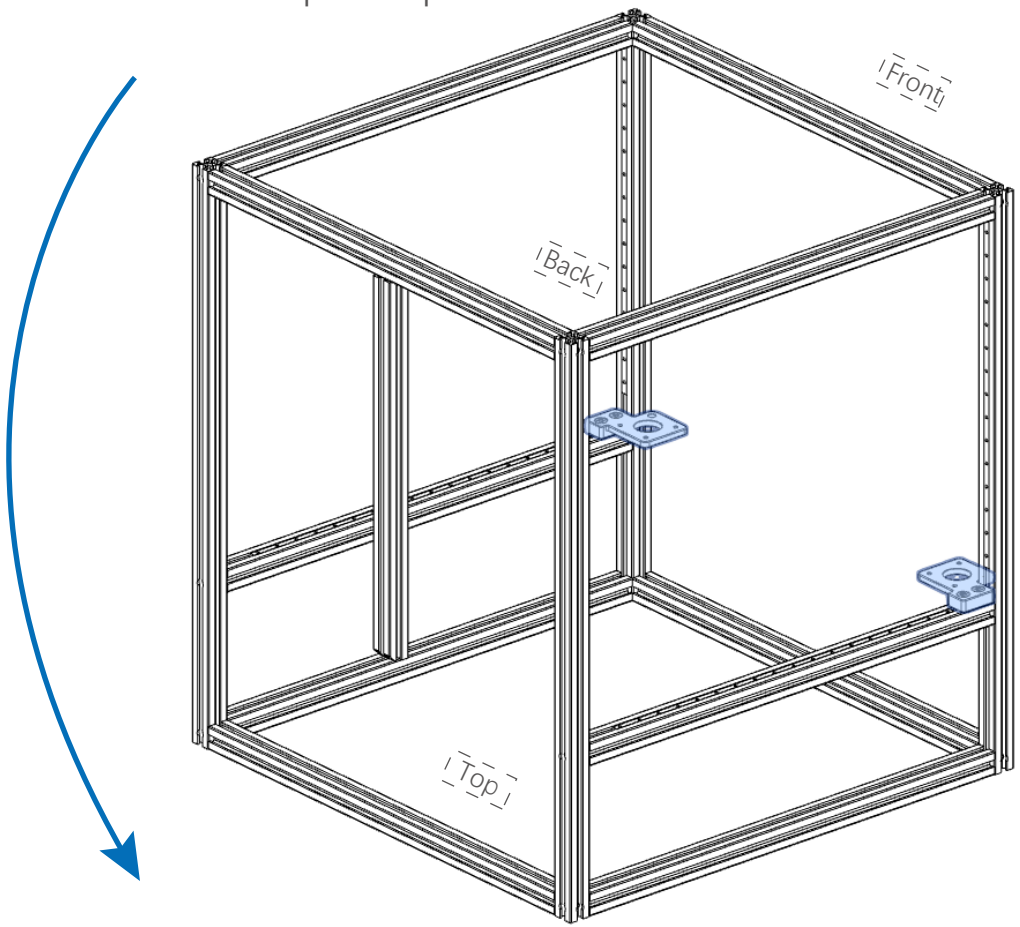
T-NUT ORIENTATION

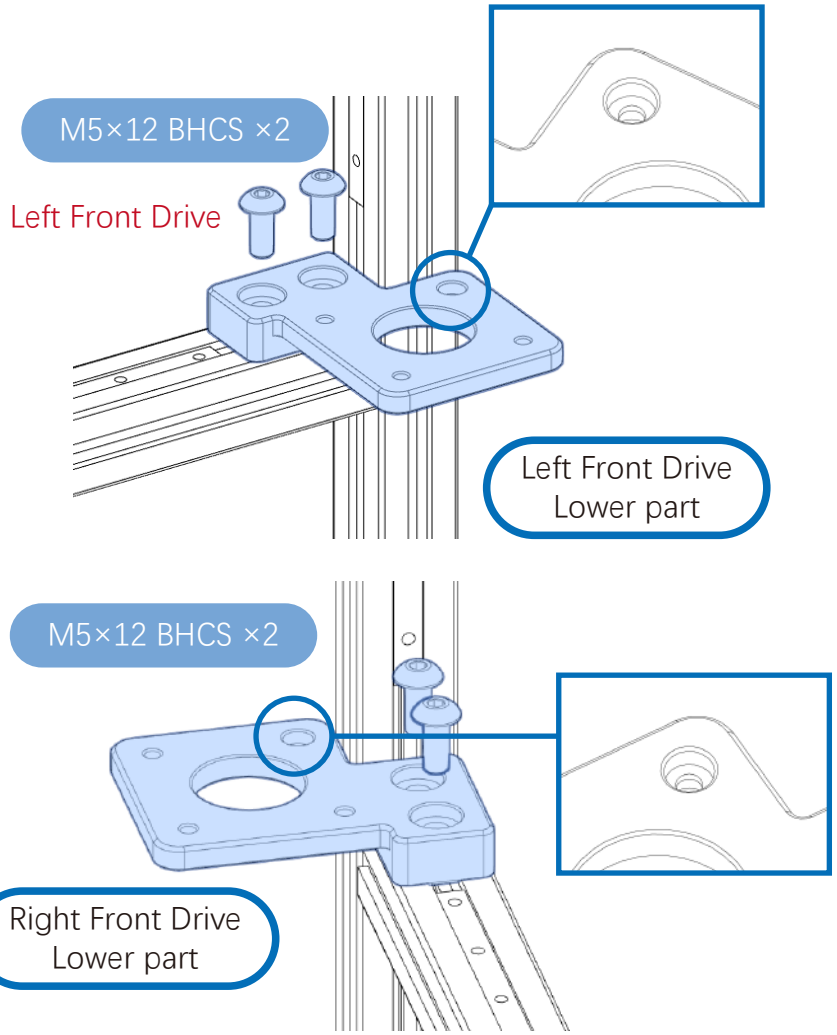
Insert the t-nuts as shown in highlight.


Top
Back
Front
M5 T-Nut 4pcs
M5 T-Nut 3pcs

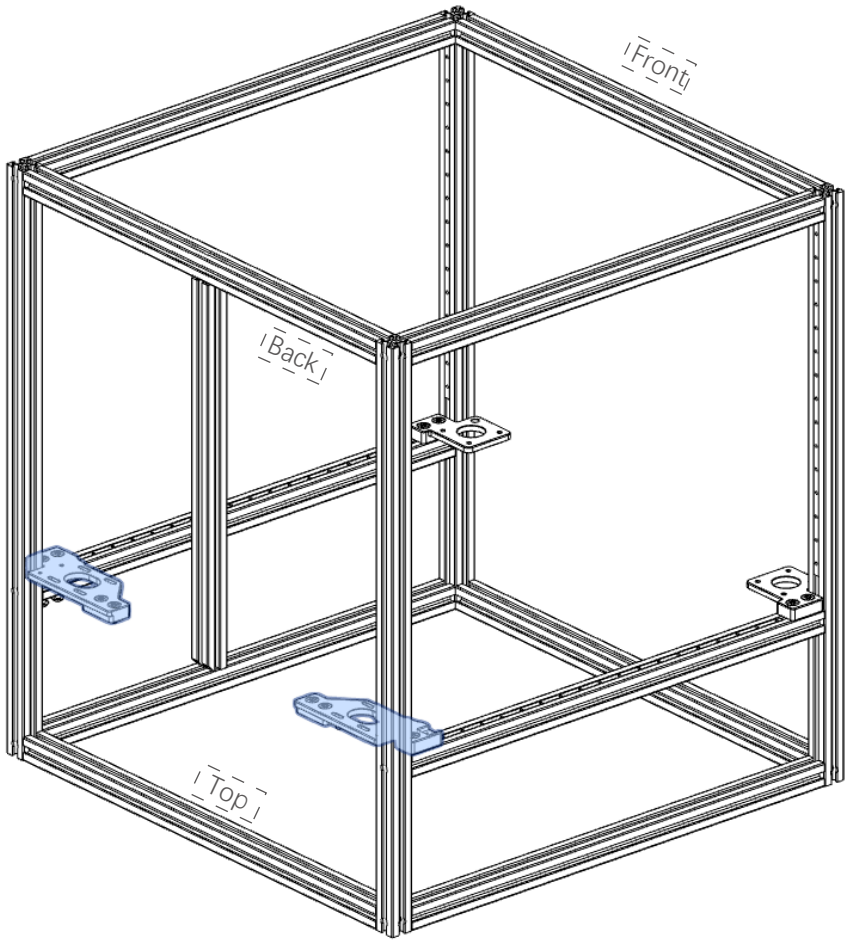
UPSIDE DOWN ASSEMBLY

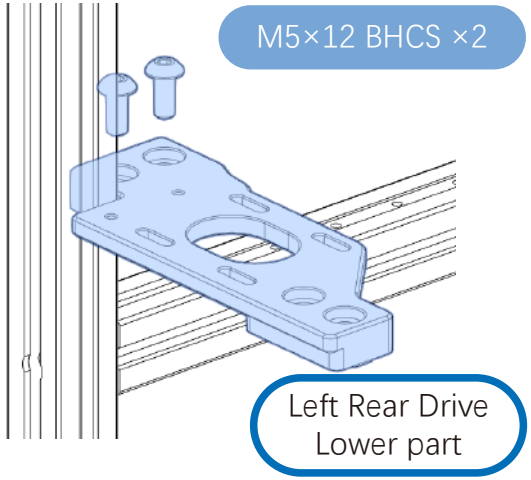
For ease of assembly, it is recommended that the printer be turned upside down for ease of subsequent operation.

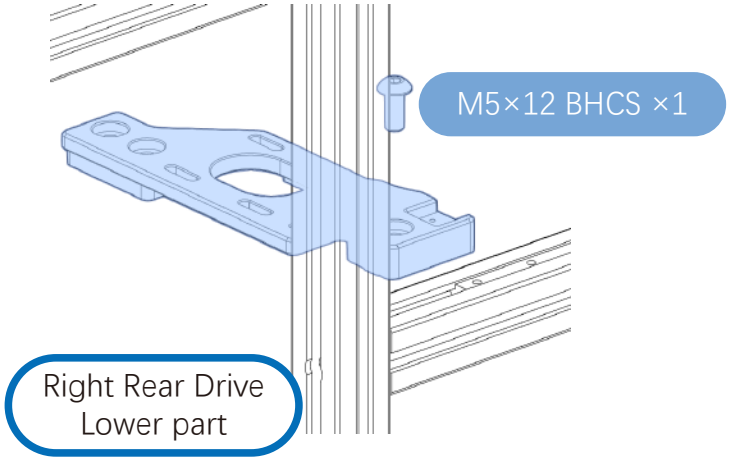


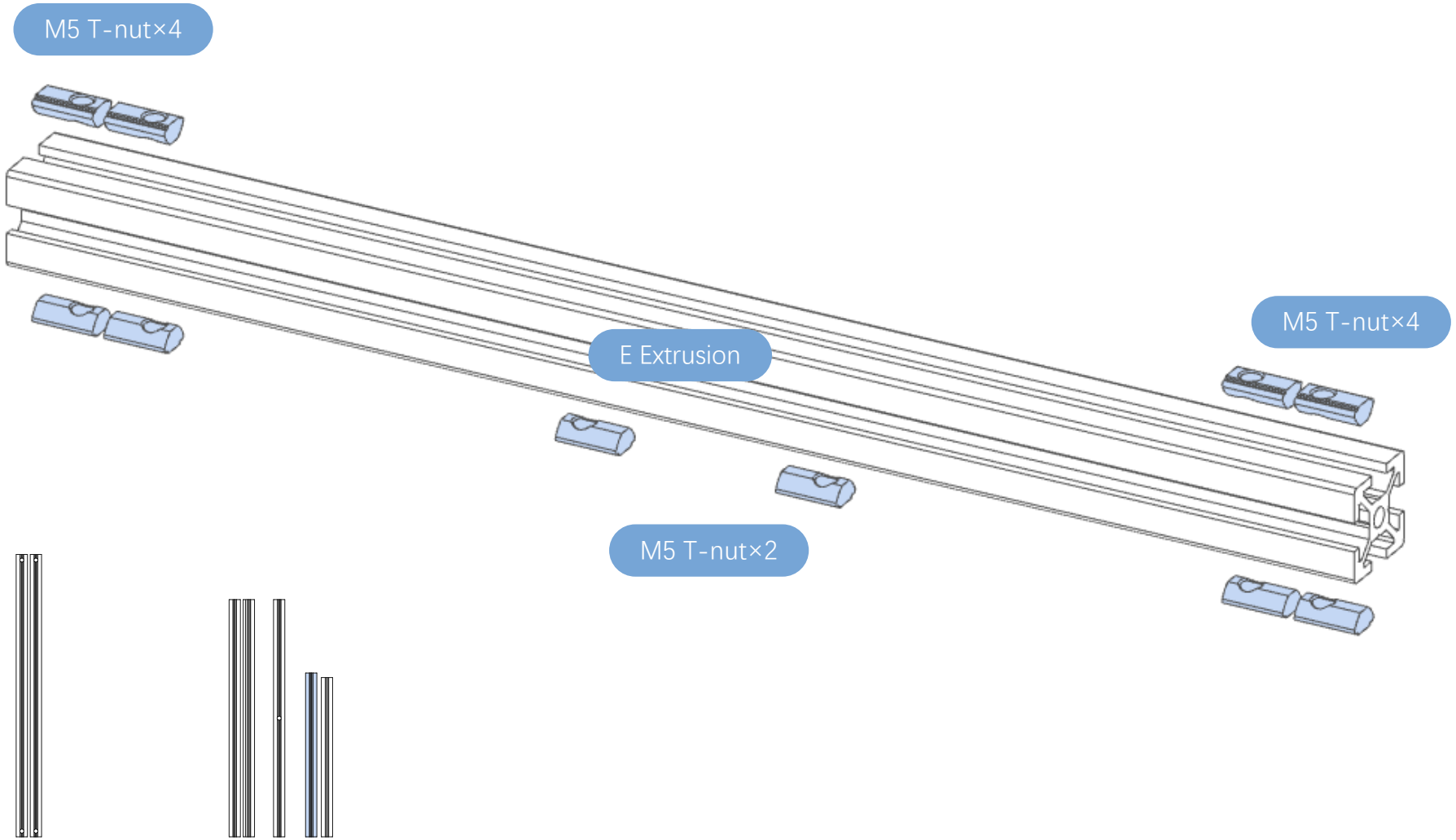


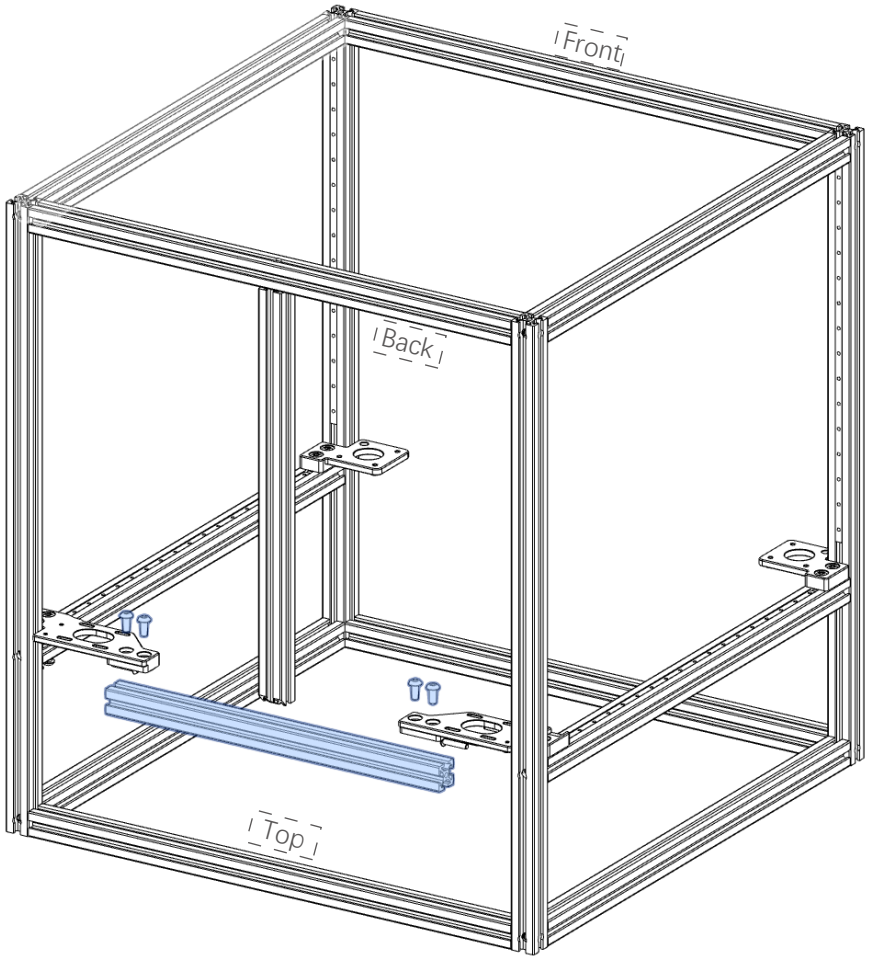
The front drive lower pieces each have a stepped hole, distinguishing them from the upper pieces.

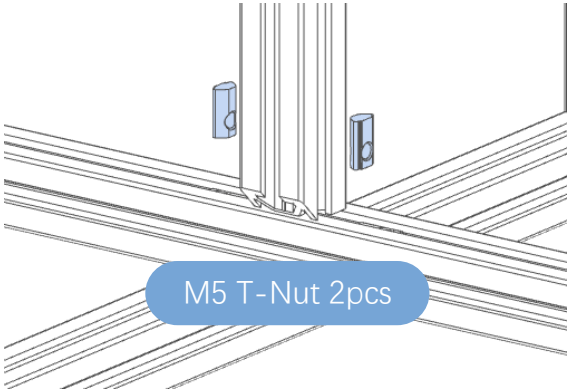

Front
Back
Top

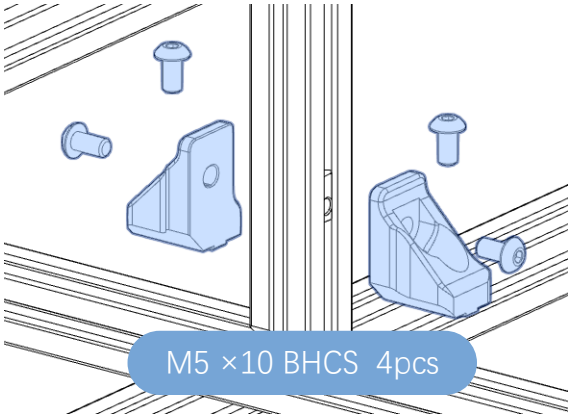

M5×12 BHCS ×2
Left Rear Drive
Lower part


M5×12 BHCS ×1
Right Rear Drive
Lower part


M5 T-nut×4
E Extrusion
M5 T-nut×4
M5 T-nut×2



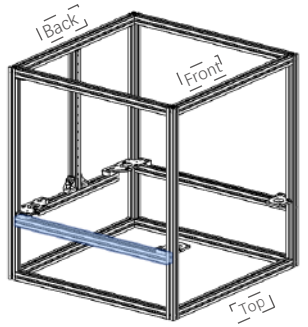


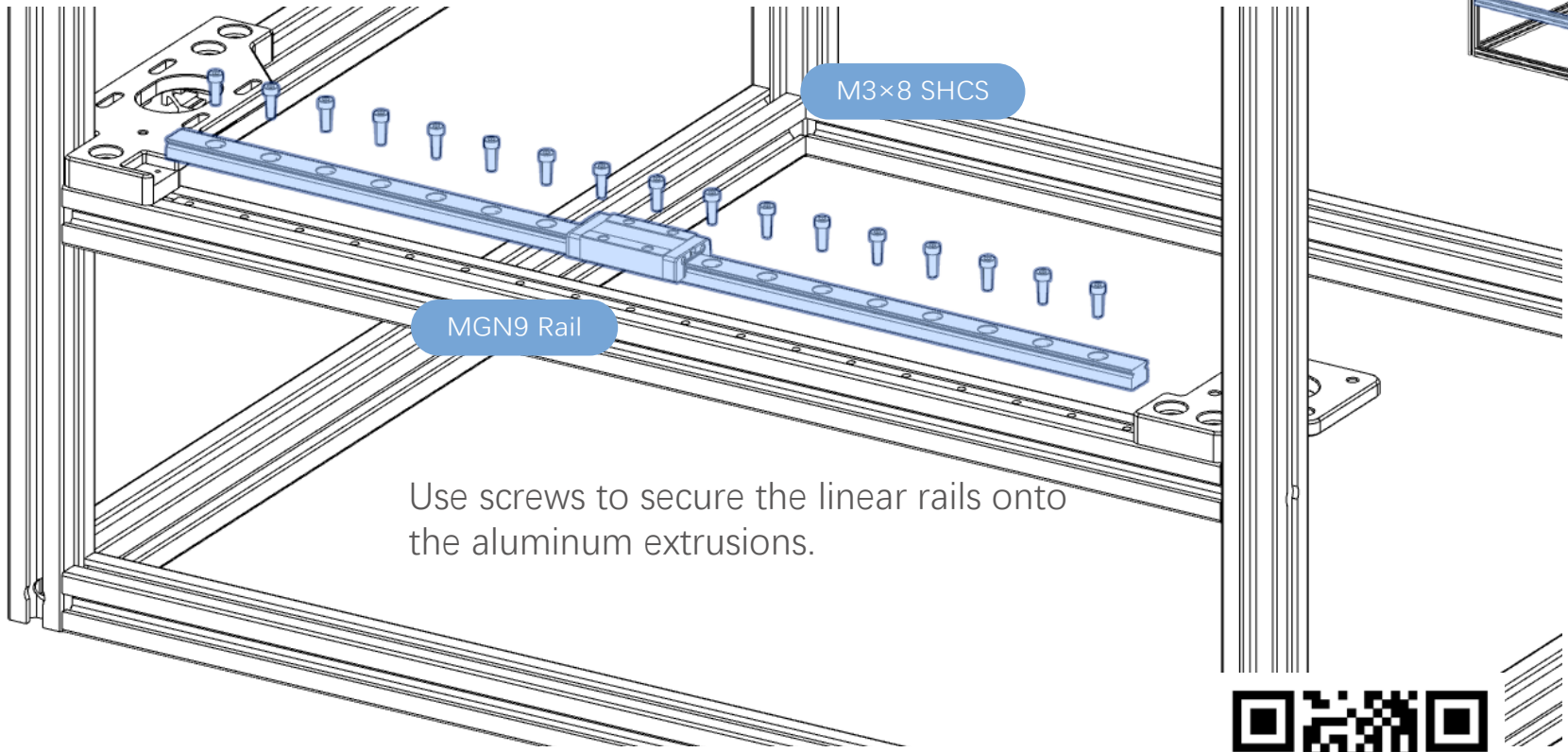


Note that ABS prints are used here

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.



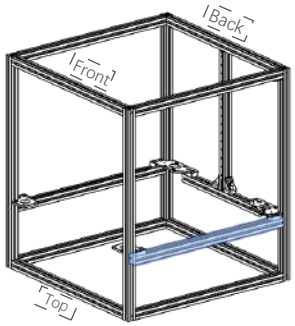


Use screws to secure the linear rails onto
the aluminum extrusions.

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

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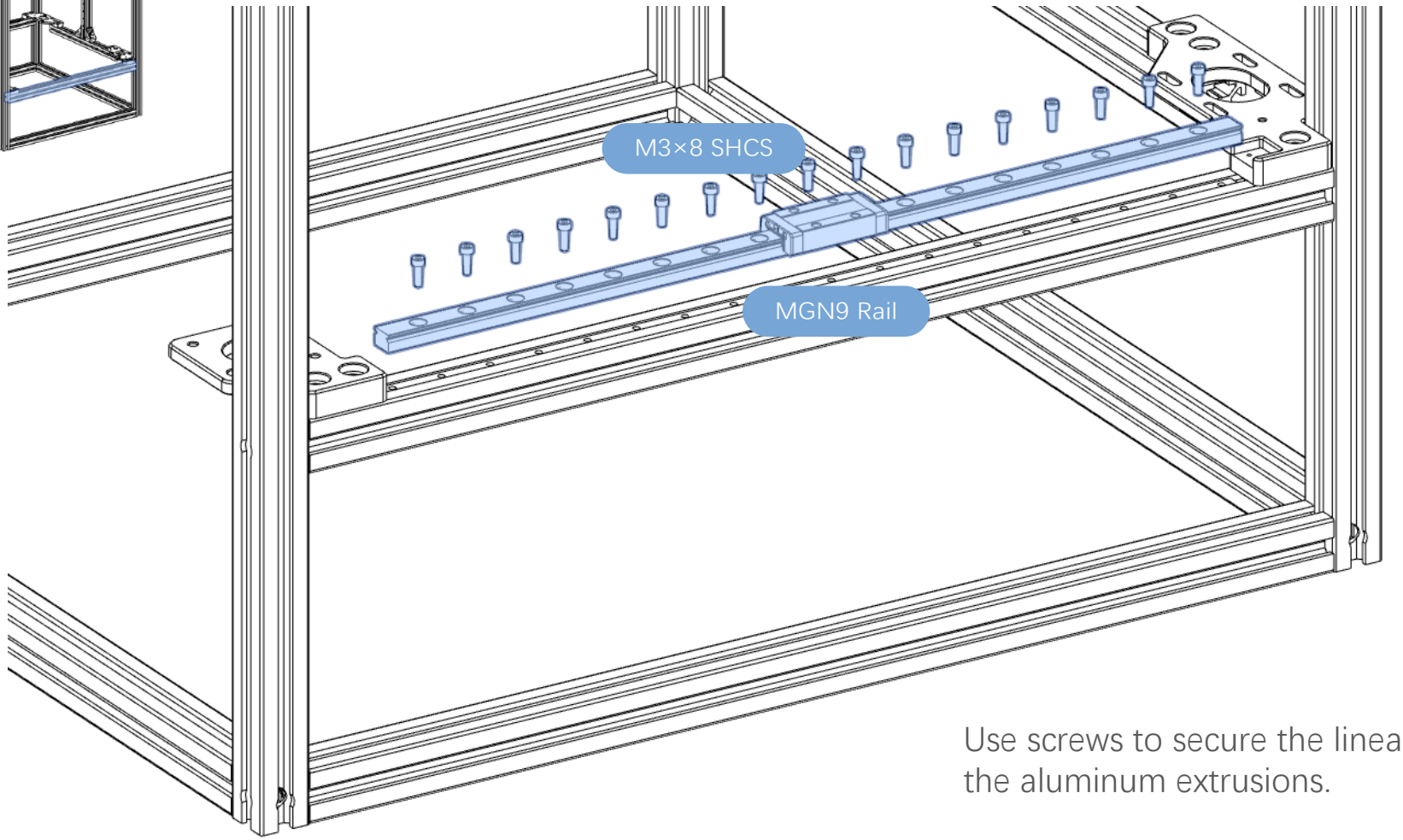
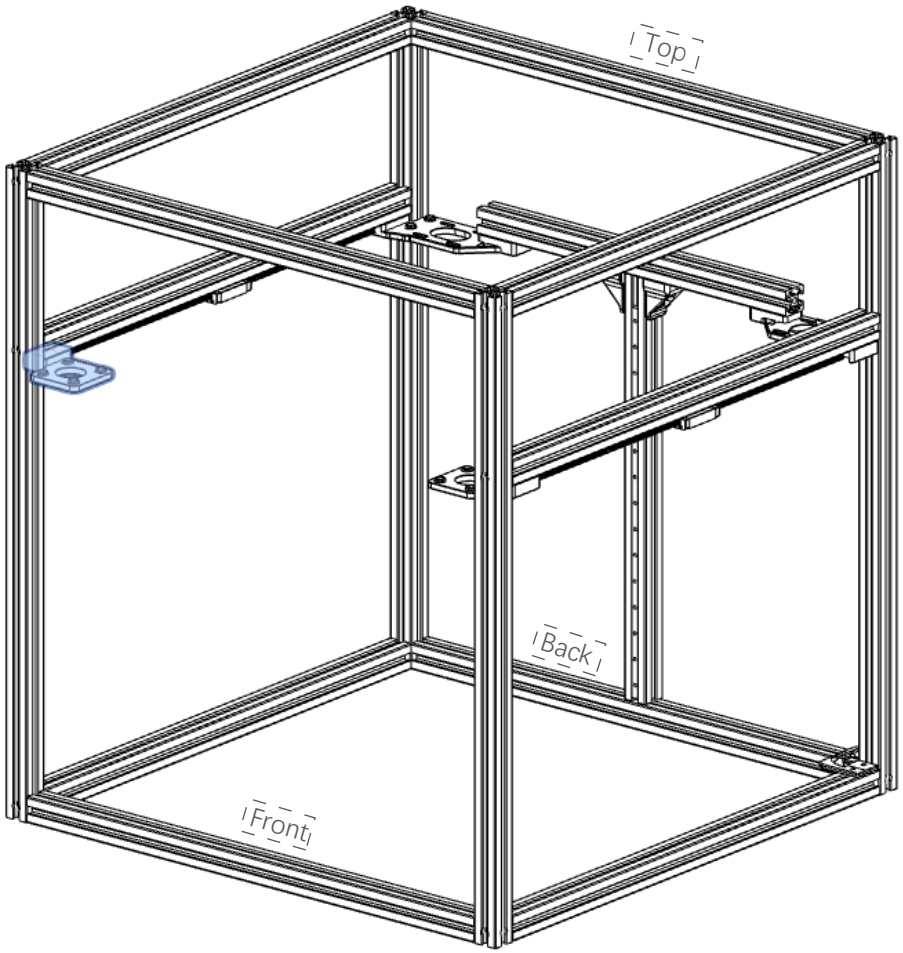
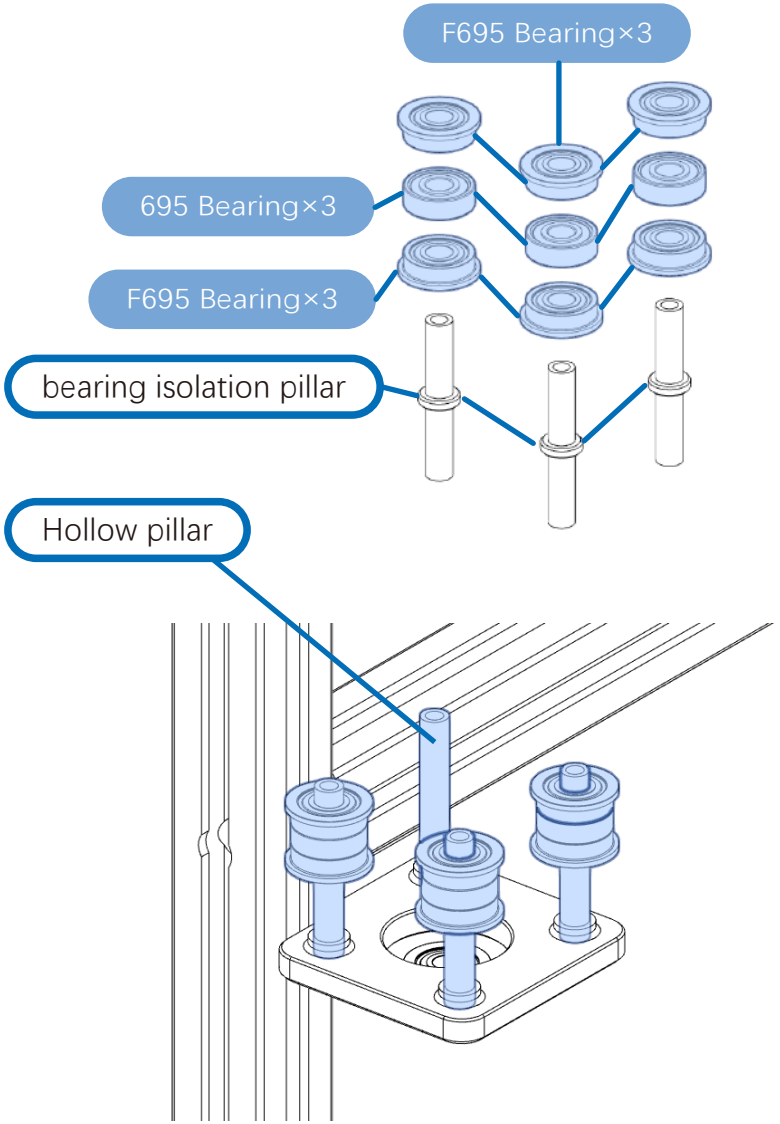
so do not attempt to remove them before installing the screws.



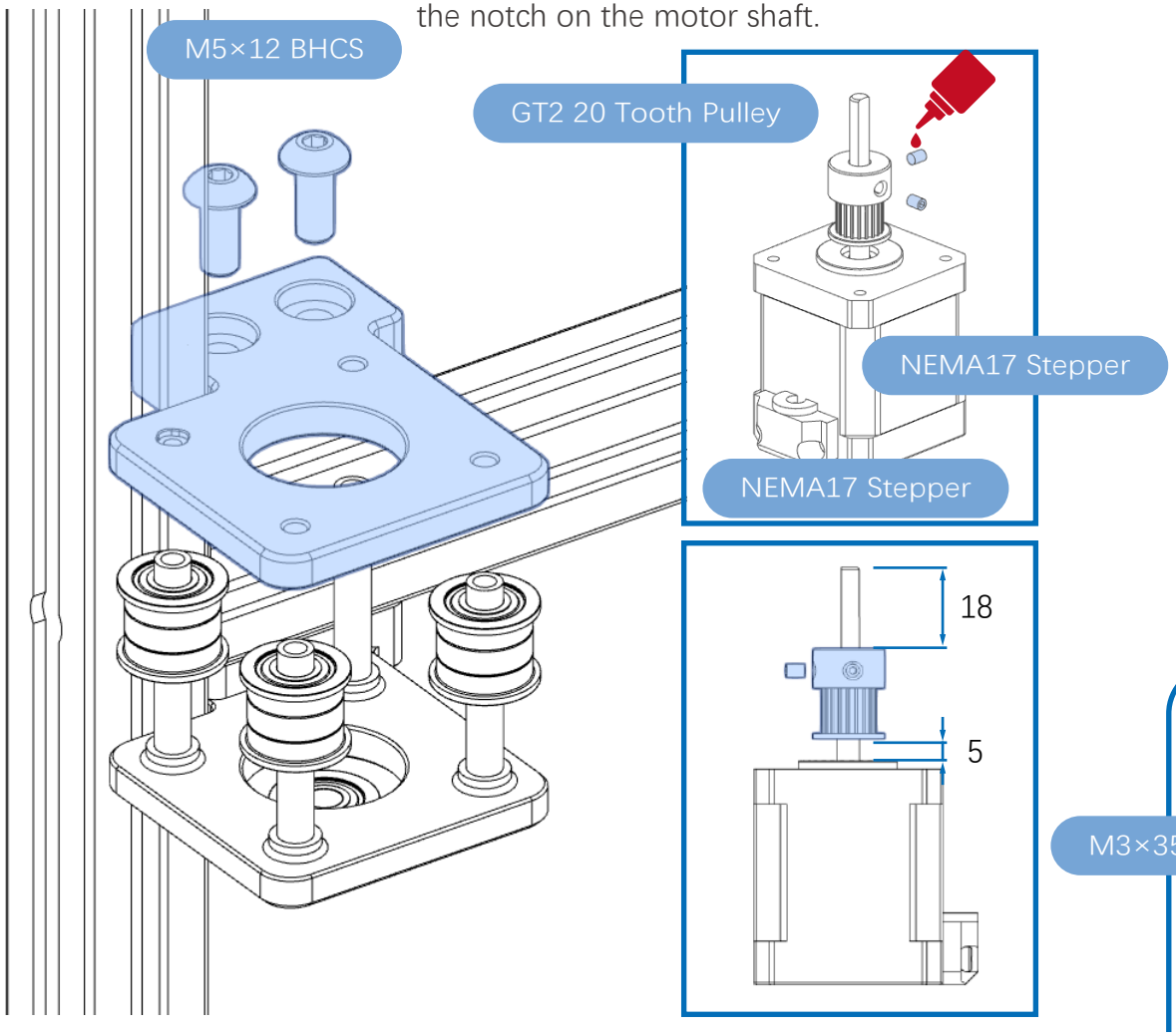
Use screws to secure the linear rails onto
the aluminum extrusions.


Top
Back
Front


F695 Bearing×3
695 Bearing×3
F695 Bearing×3
bearing isolation pillar
Hollow pillar

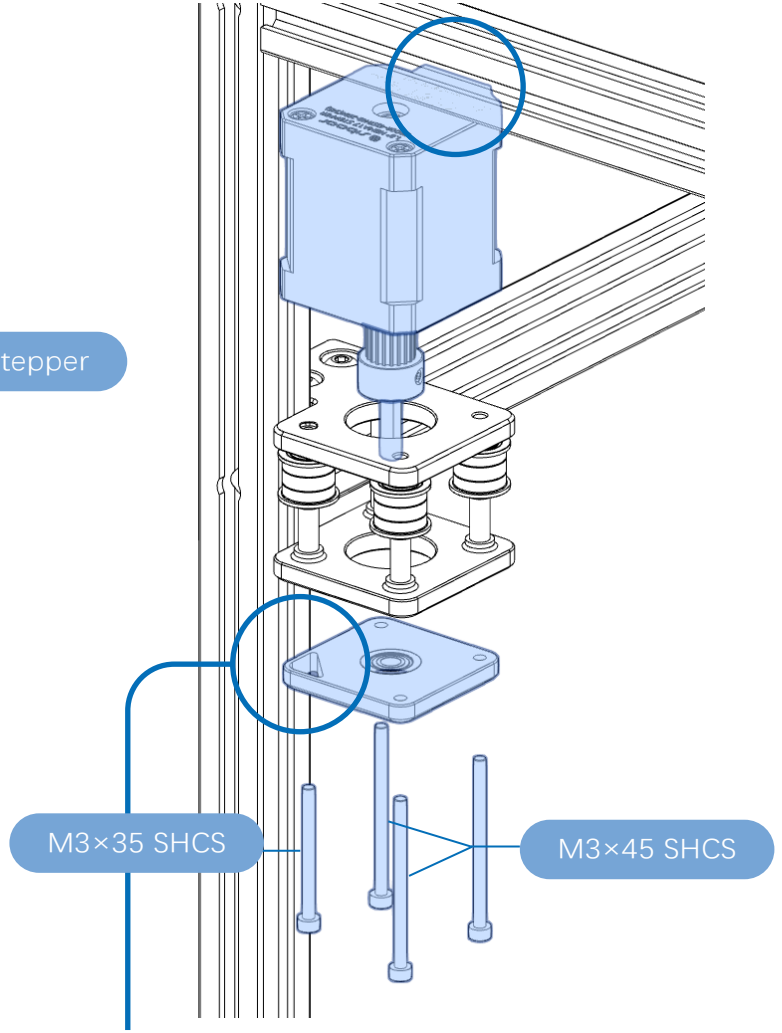
Direction

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



MOTOR ORIENTATION

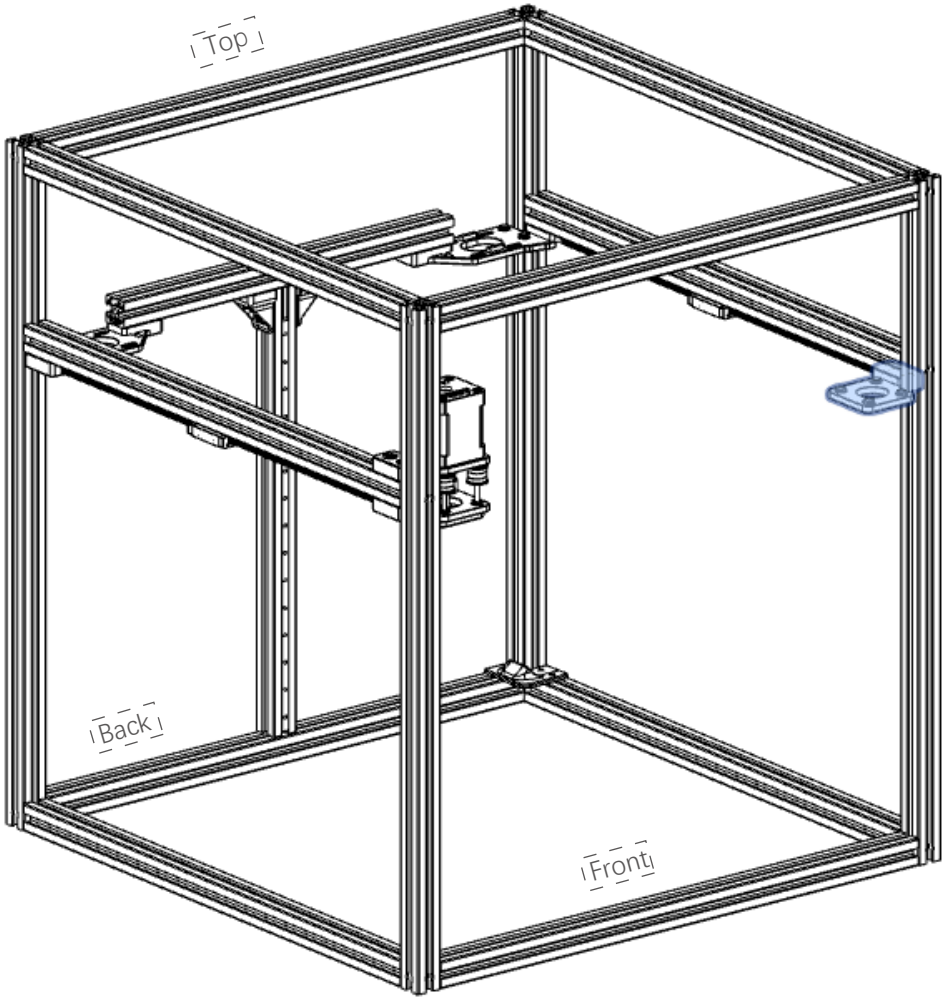
Pay attention to the orientation of the cable exit.

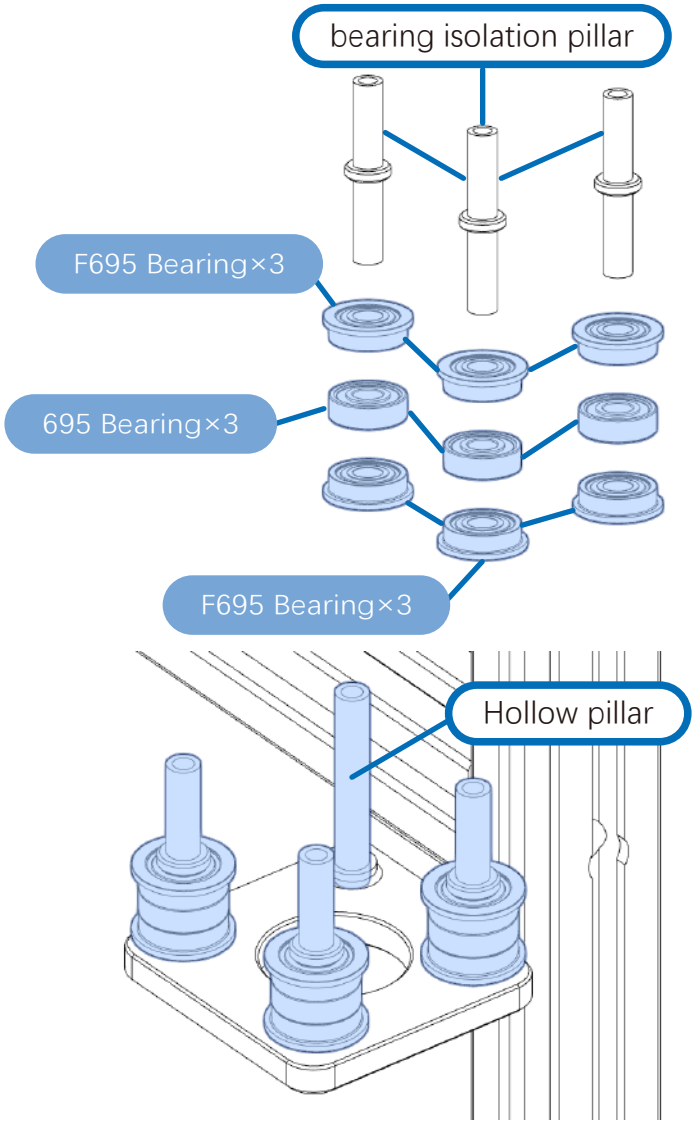


A bearing cap with a triangular notch is used in this instance.

Thread locker

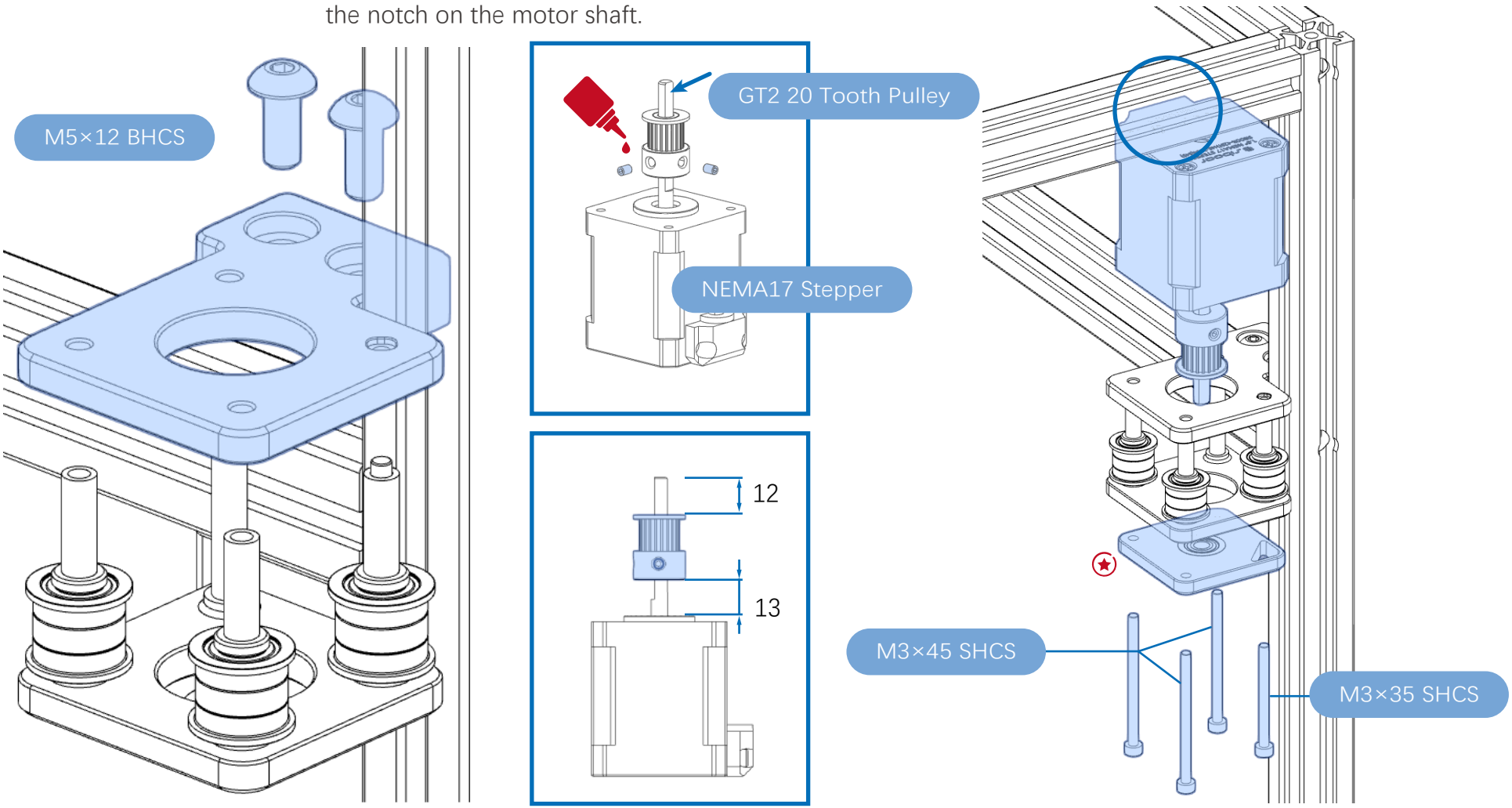
Consider adding threadlocker for the specific screw
(e.g., the Voron motor mount screw). this screw often loosens and causes tension issues.
Note that some threadlockers might lock too tightly for future adjustments.
If threadlocker is unavailable, you can temporarily skip this step.


Top
Back
Front


bearing isolation pillar
F695 Bearing×3
695 Bearing×3
F695 Bearing×3
Hollow pillar

Direction

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



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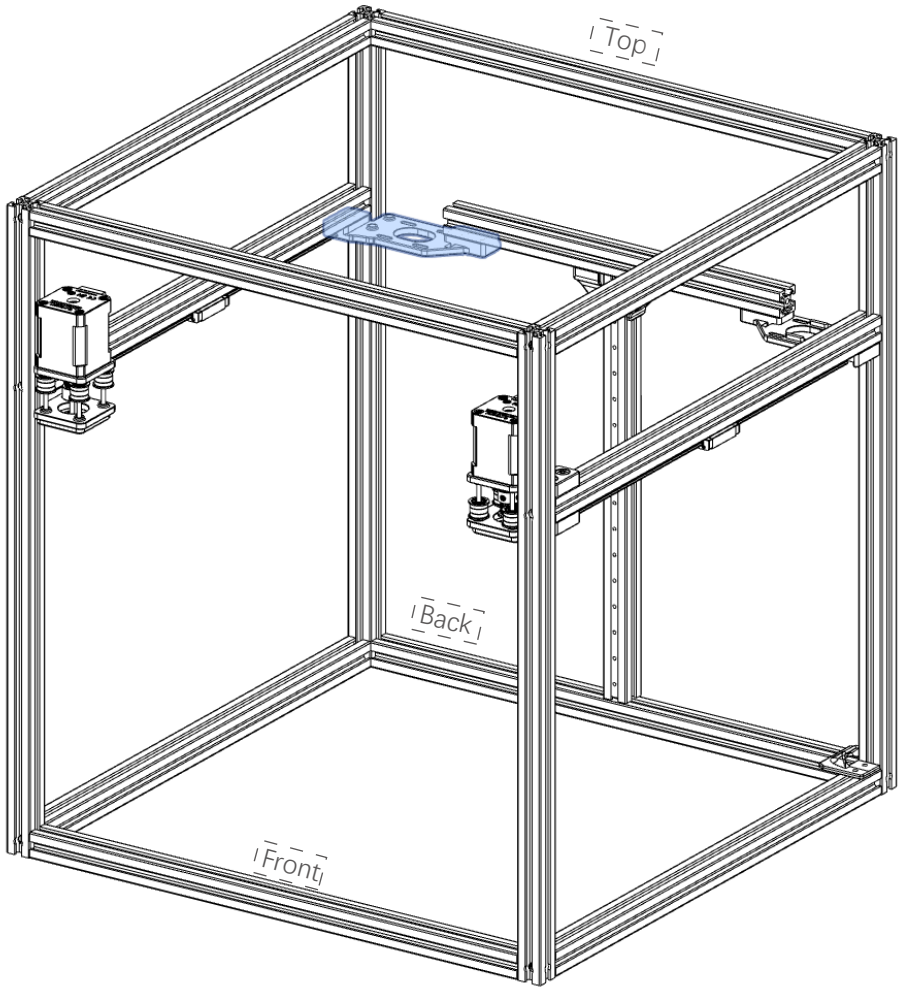
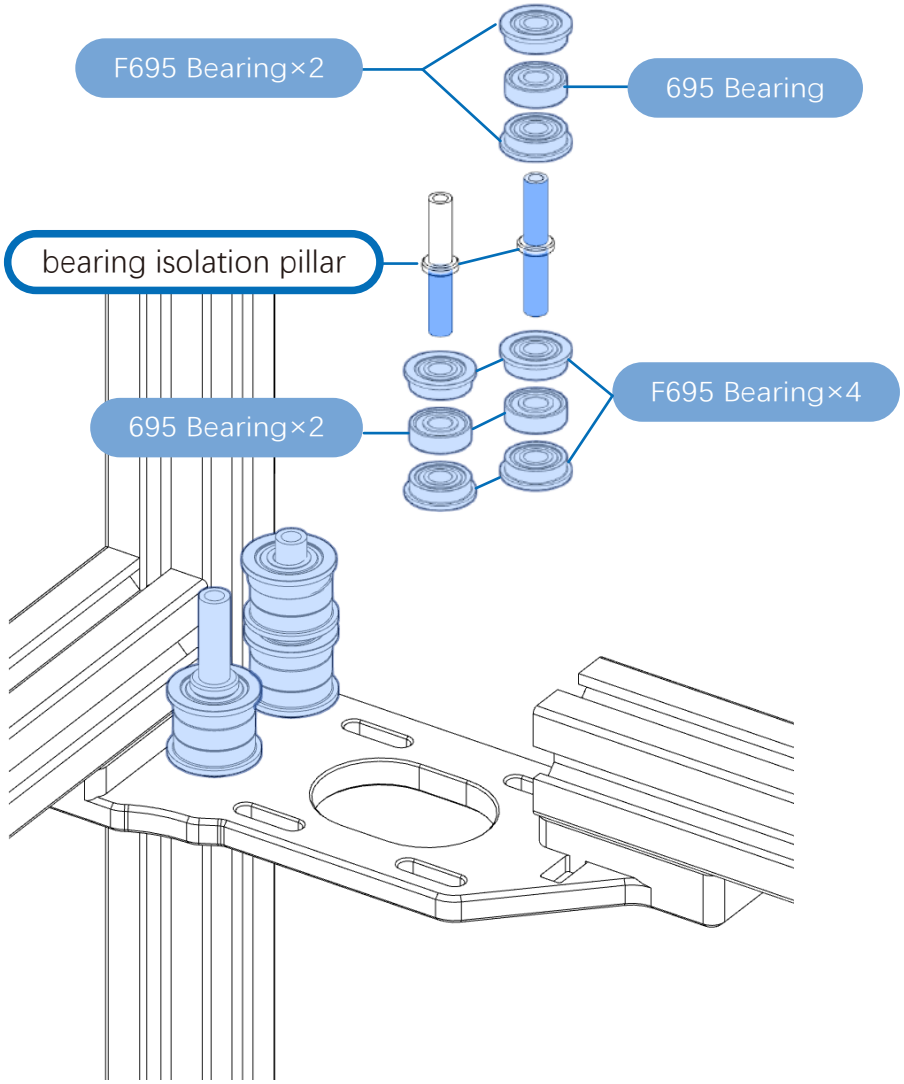
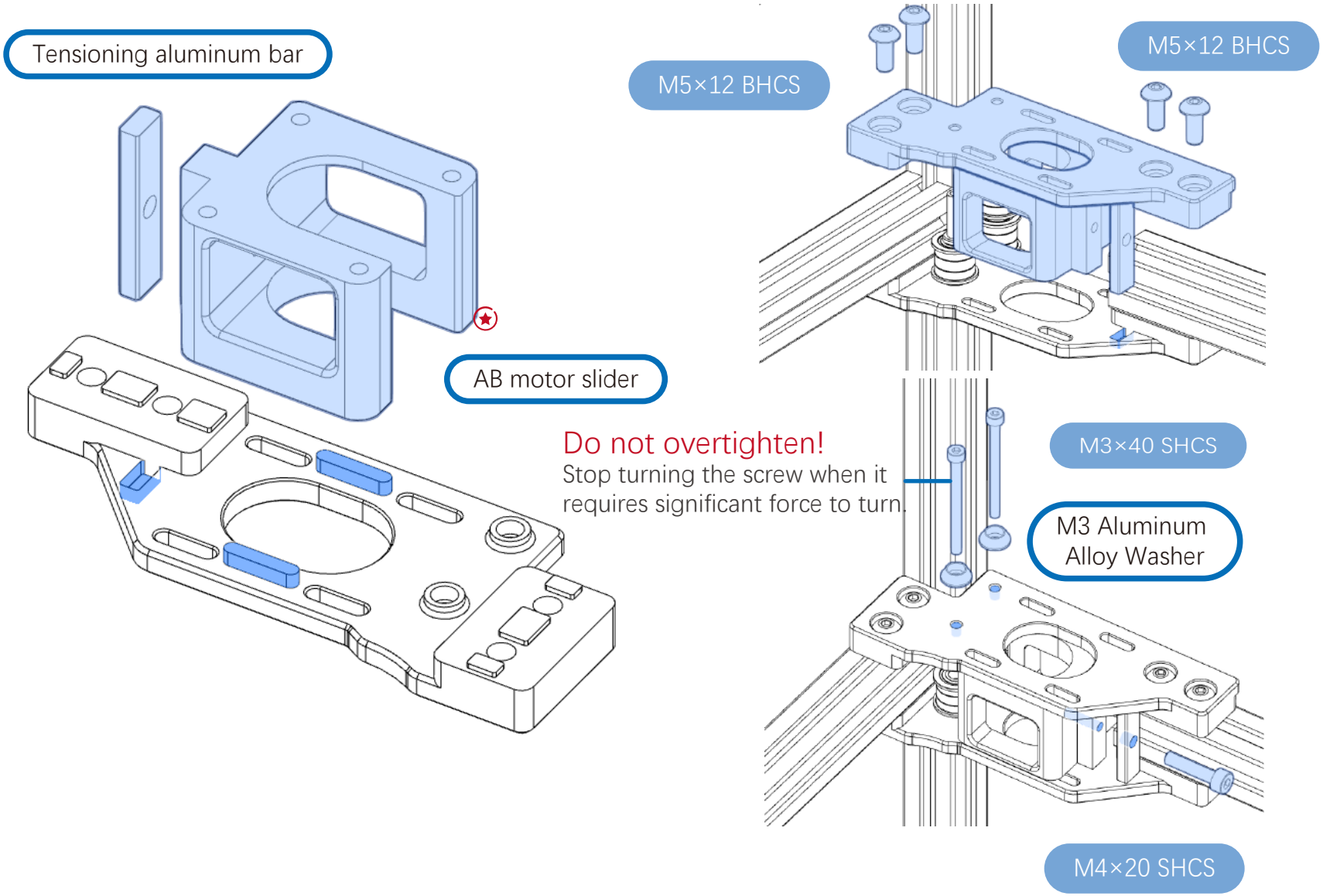
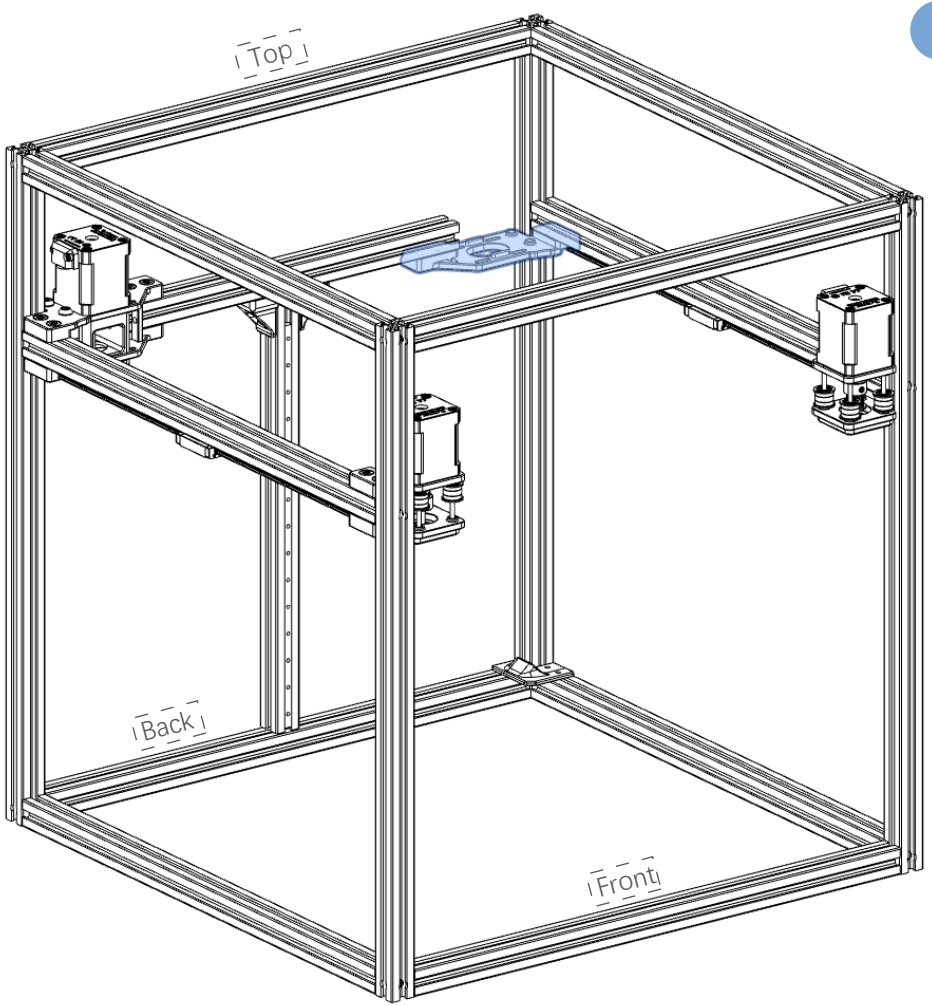
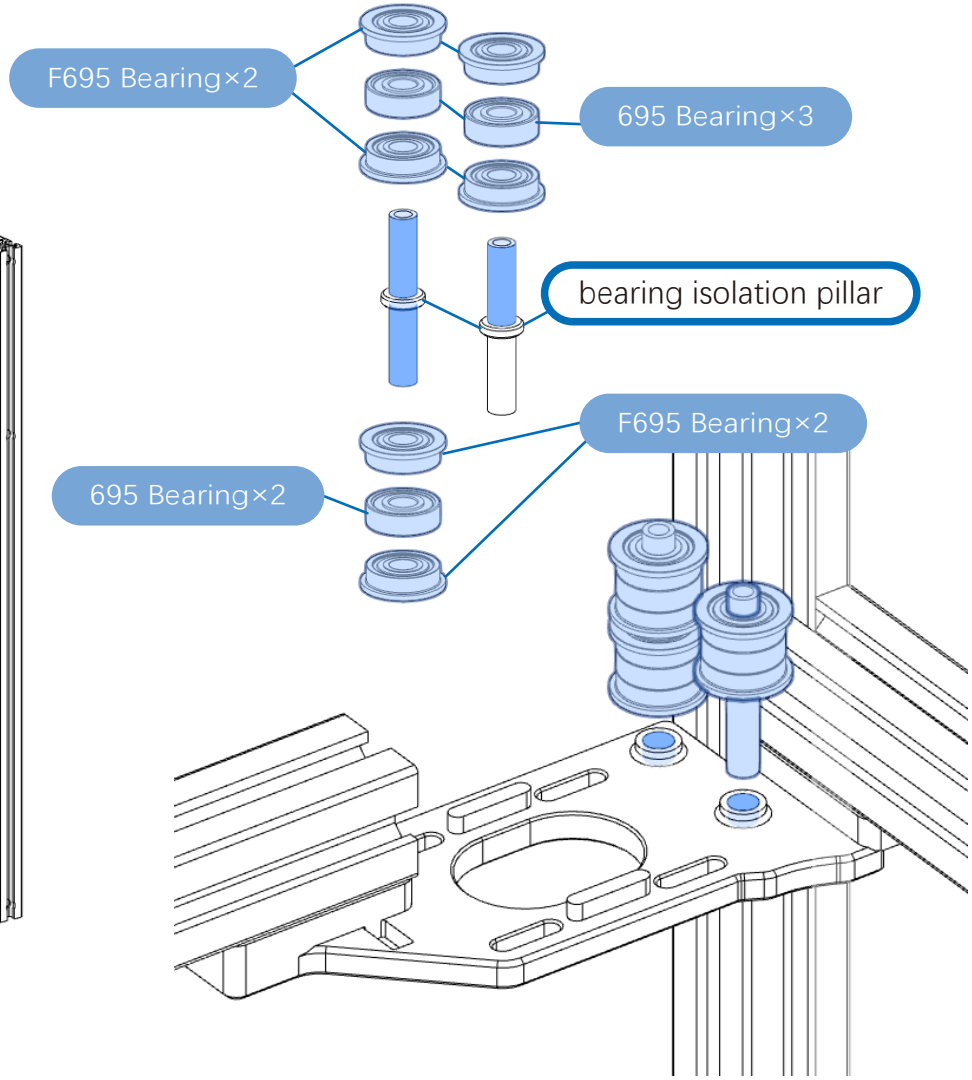
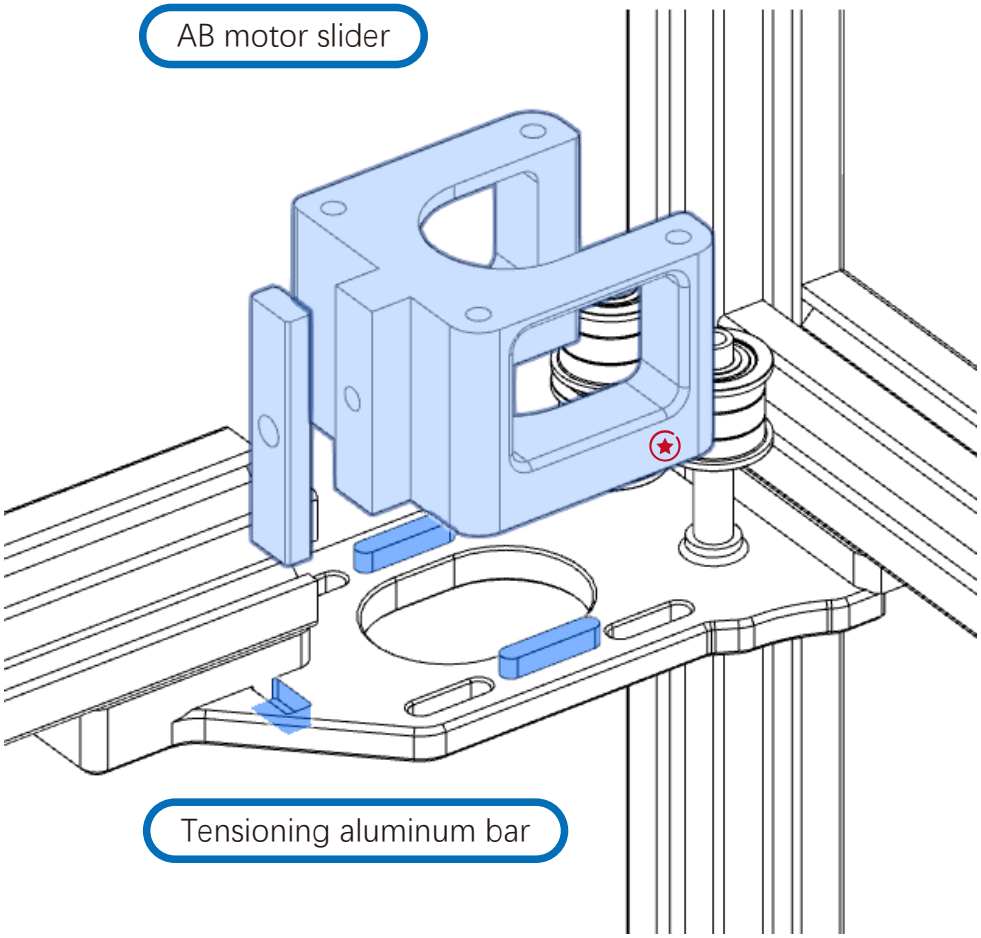

Top
Back
Front

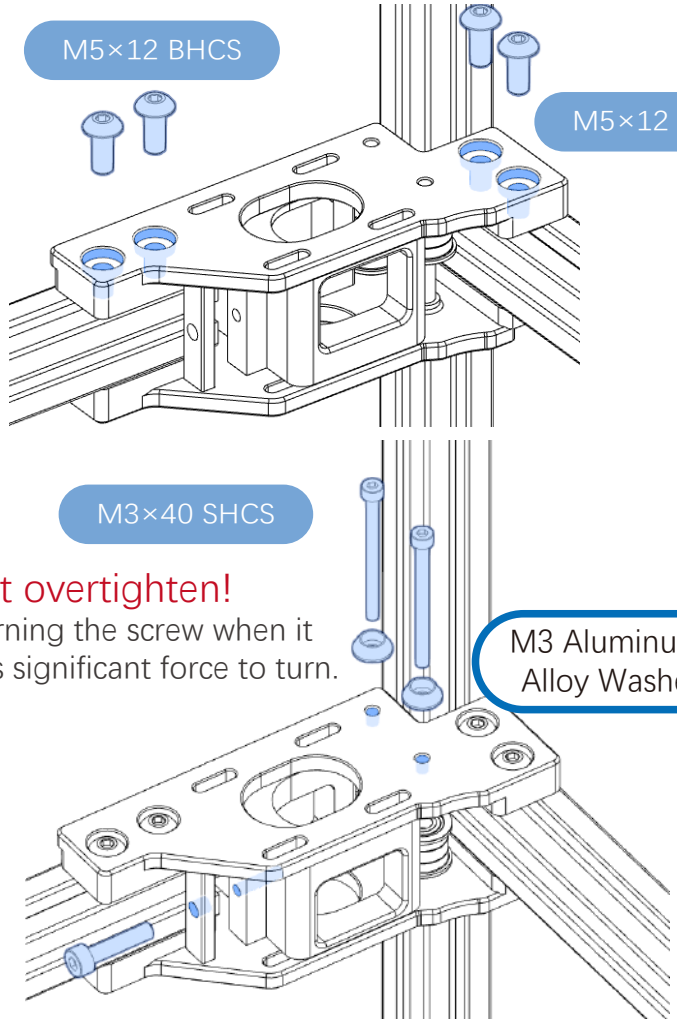

F695 Bearing×2
695 Bearing
bearing isolation pillar
695 Bearing×2
F695 Bearing×4


Tensioning aluminum bar
AB motor slider
M5×12 BHCS
M5×12 BHCS
Do not overtighten!
Stop turning the screw when it requires significant force to turn.
M3×40 SHCS
M3 Aluminum Alloy Washer
M4×20 SHCS


Top
Back
Front


F695 Bearing×2
695 Bearing×3
bearing isolation pillar
F695 Bearing×2
695 Bearing×2





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

M4×20 SHCS only need to be threaded in 2-3 turns to facilitate subsequent belt tensioning.

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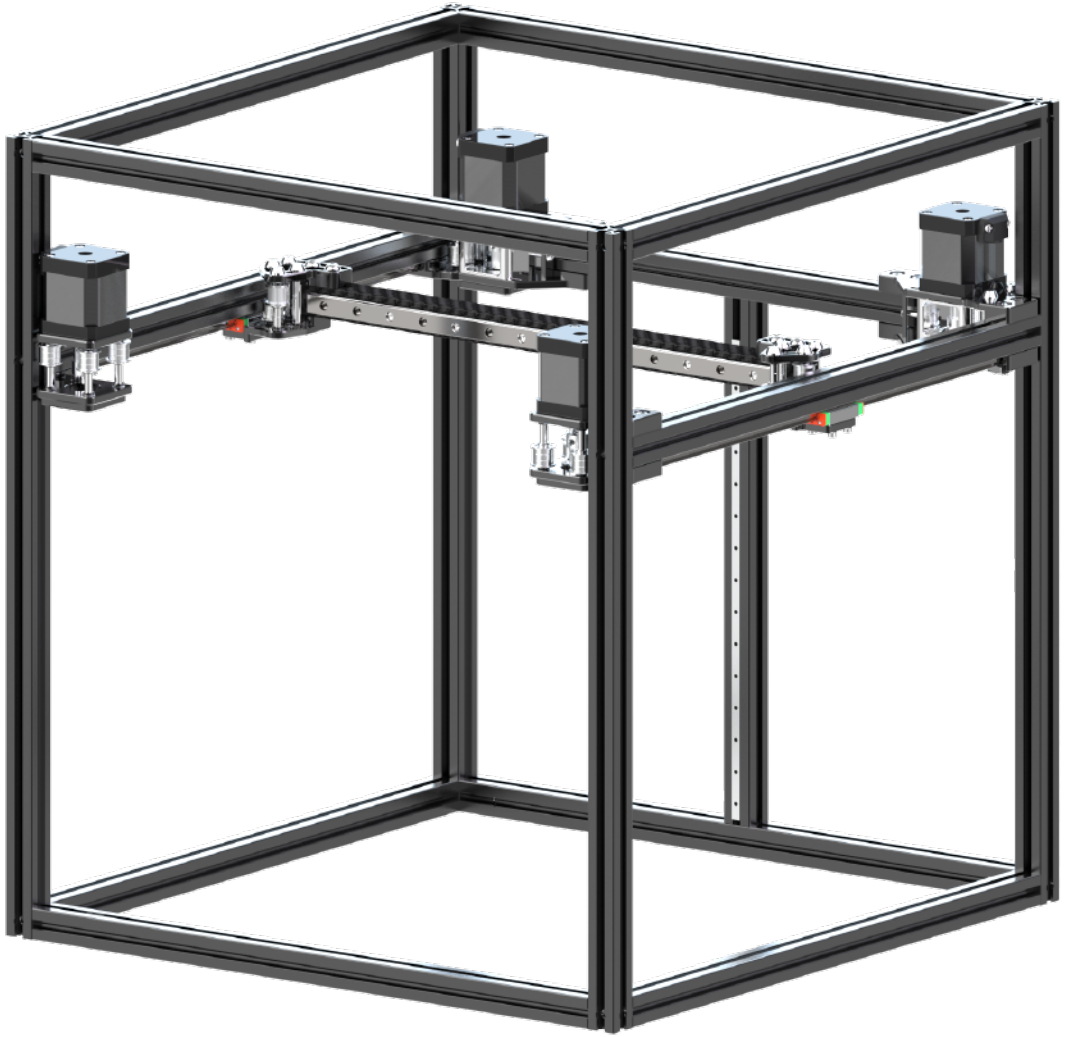
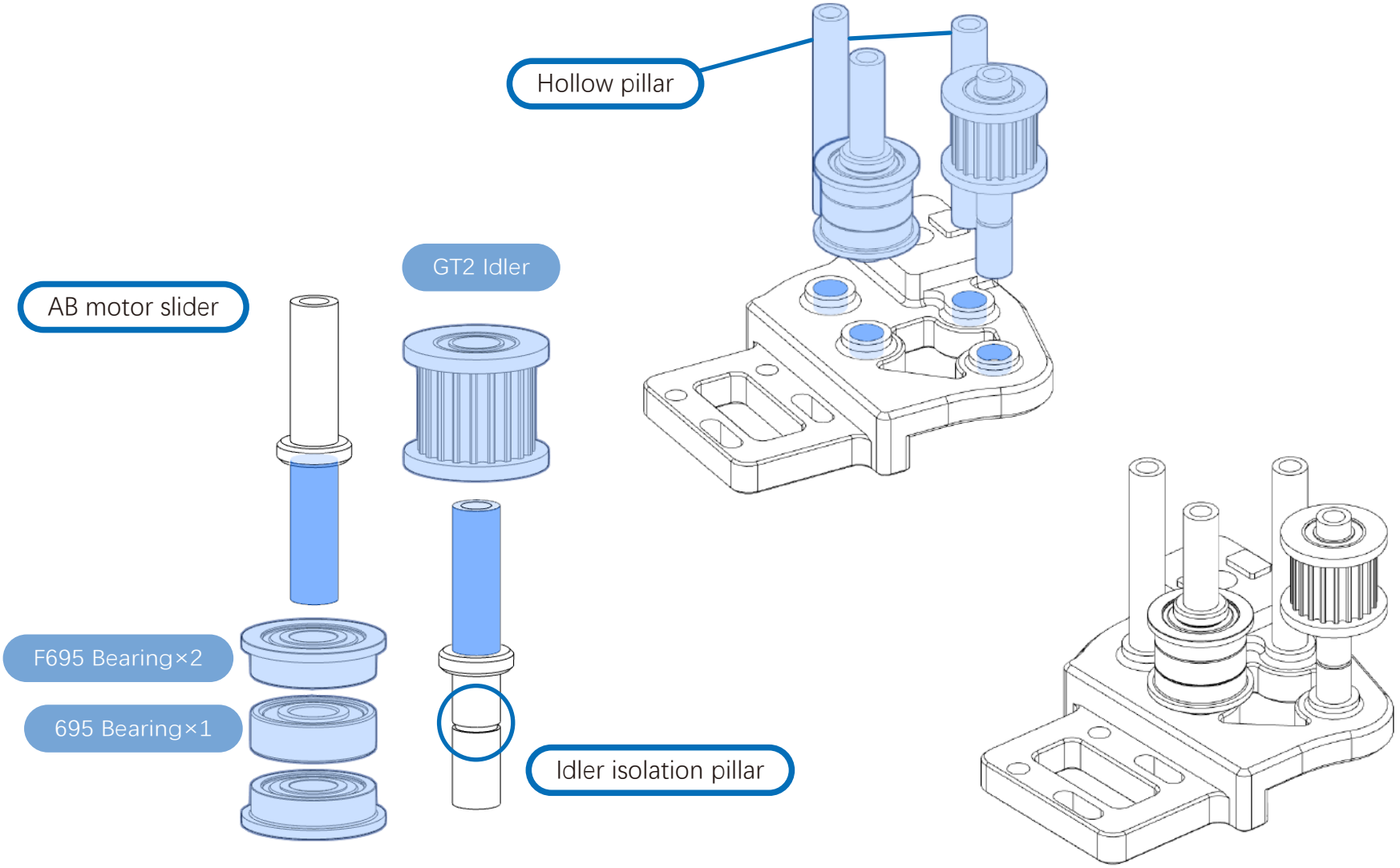
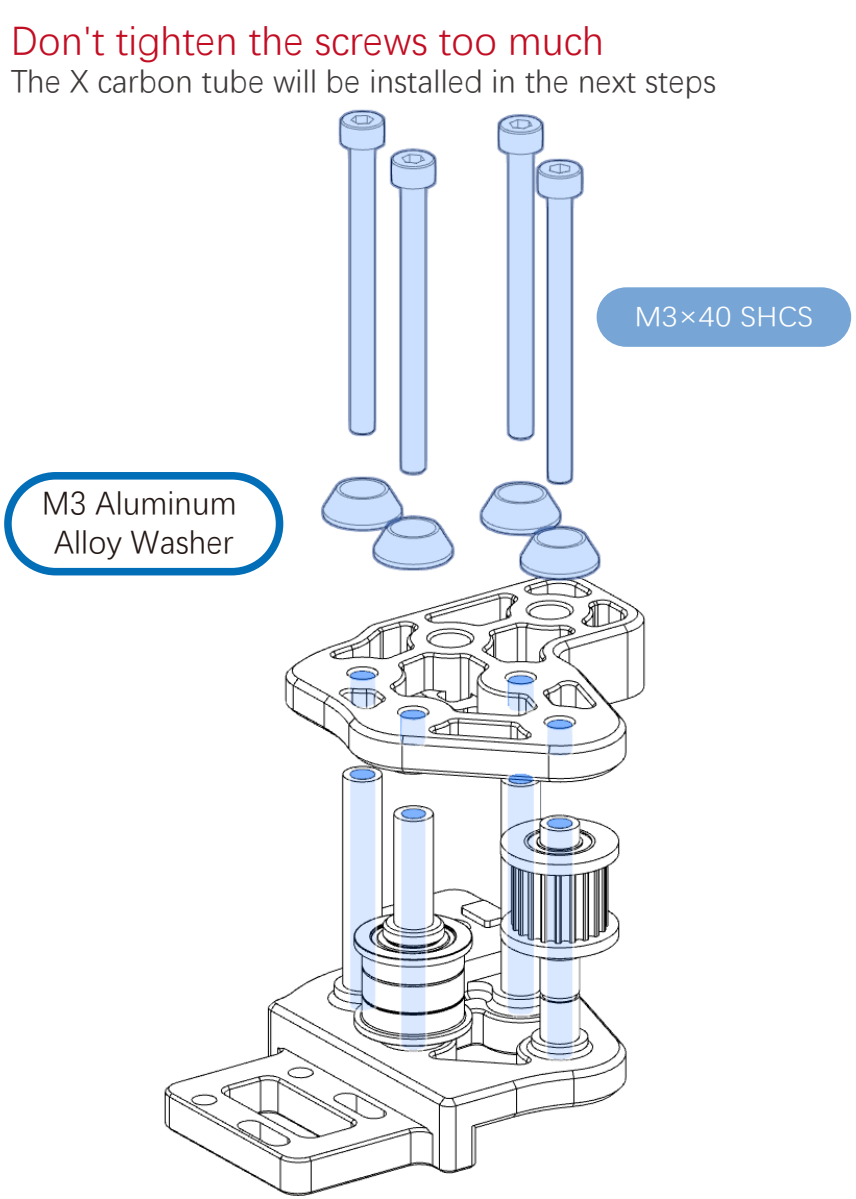
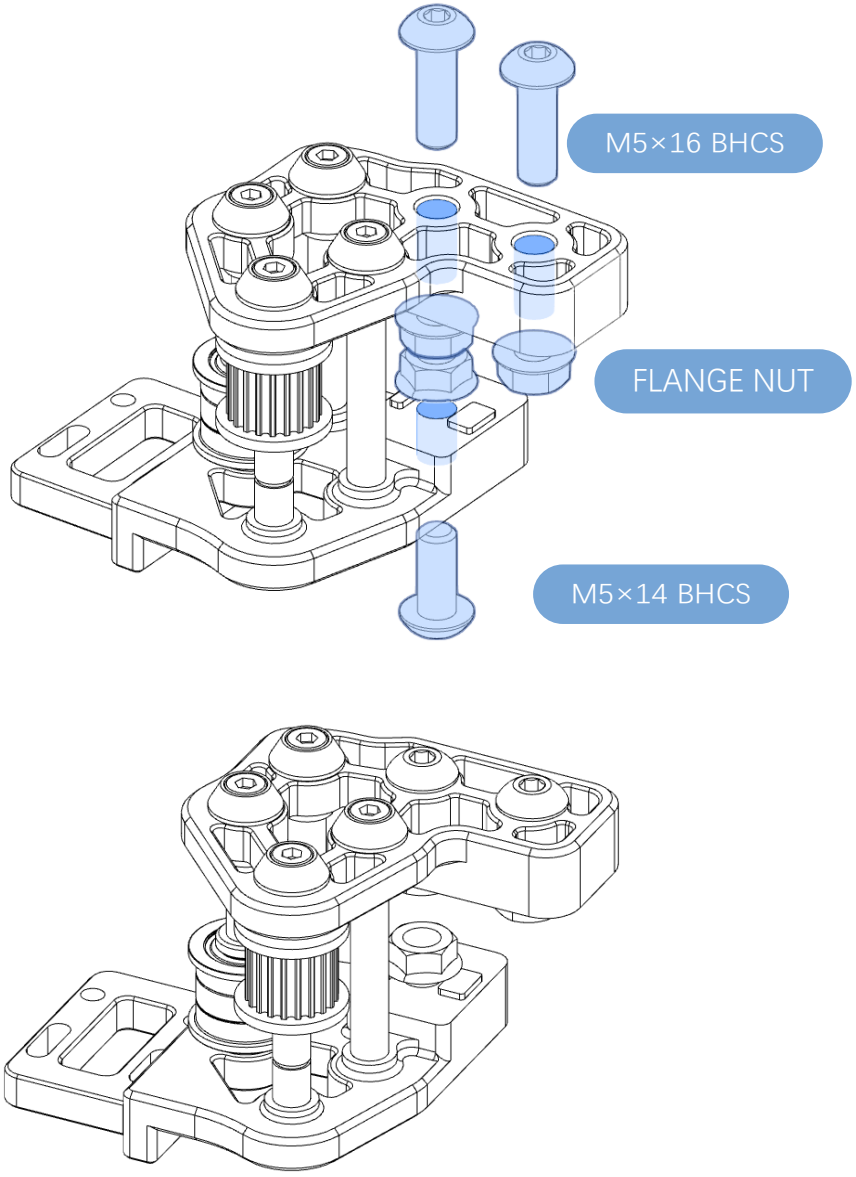


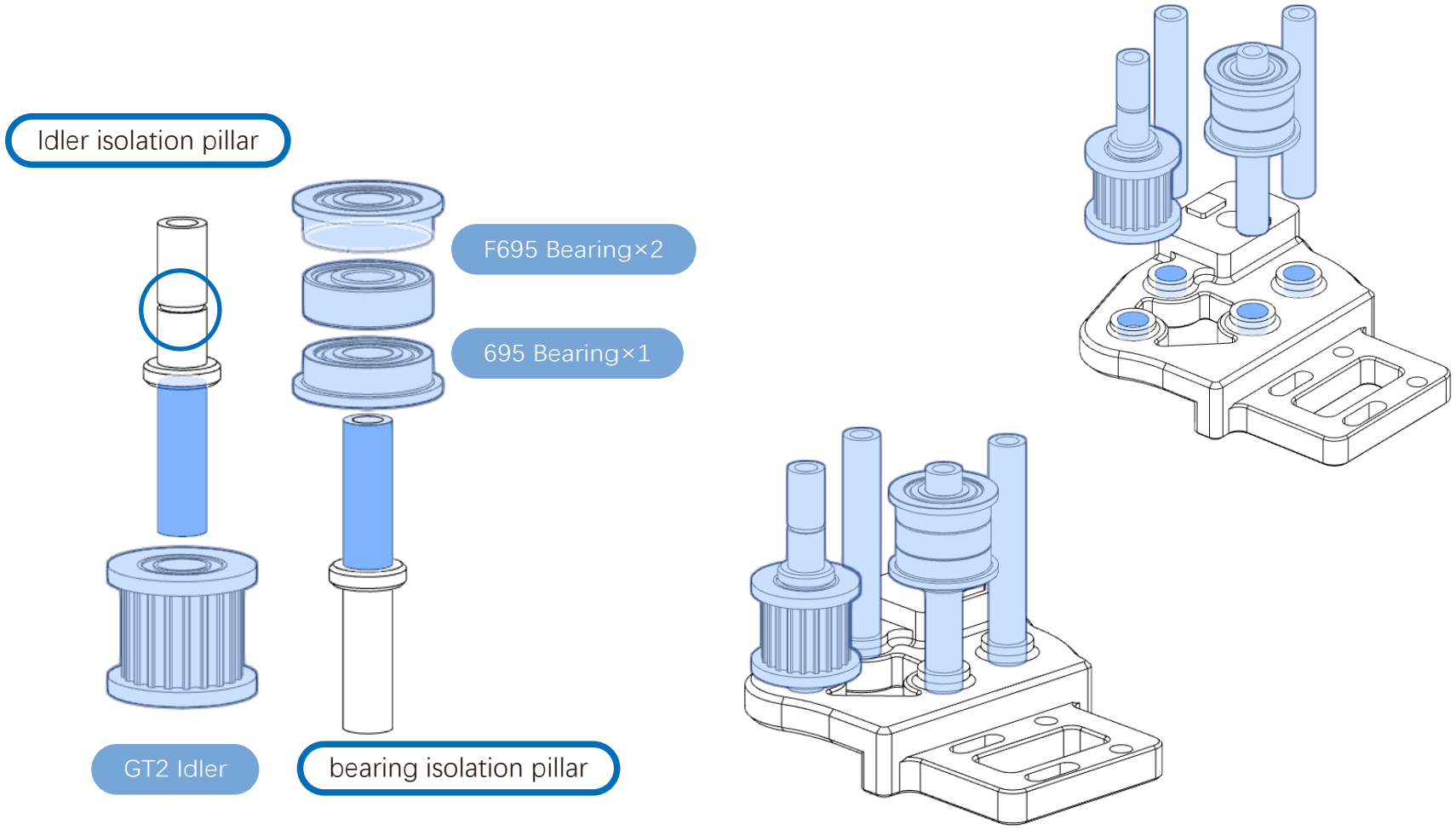

Hollow pillar
GT2 Idler
AB motor slider
F695 Bearing×2
695 Bearing×1
Idler isolation pillar

Don't tighten the screws too much

The X carbon tube will be installed in the next steps

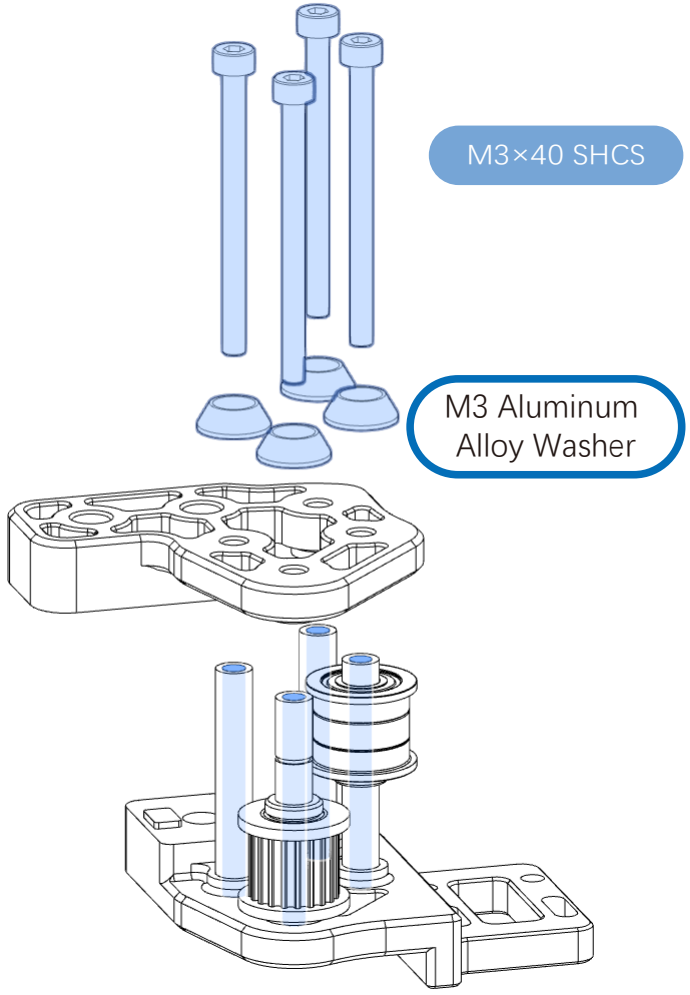


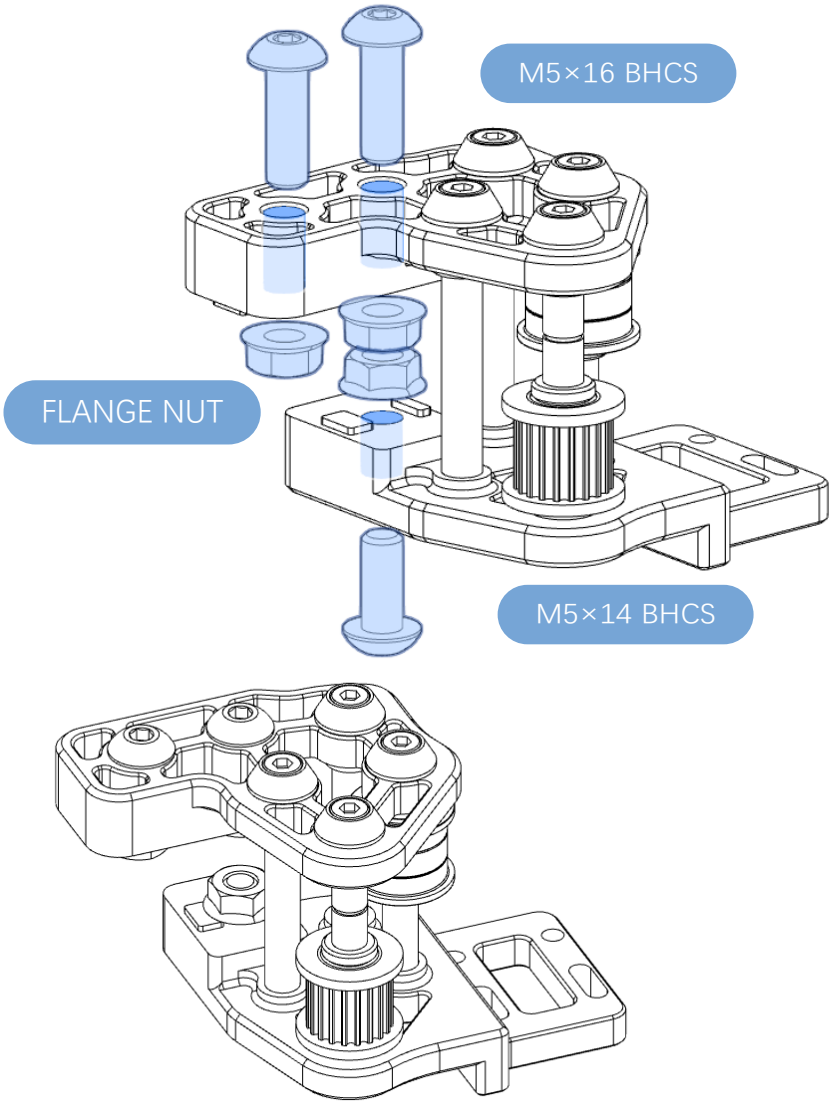


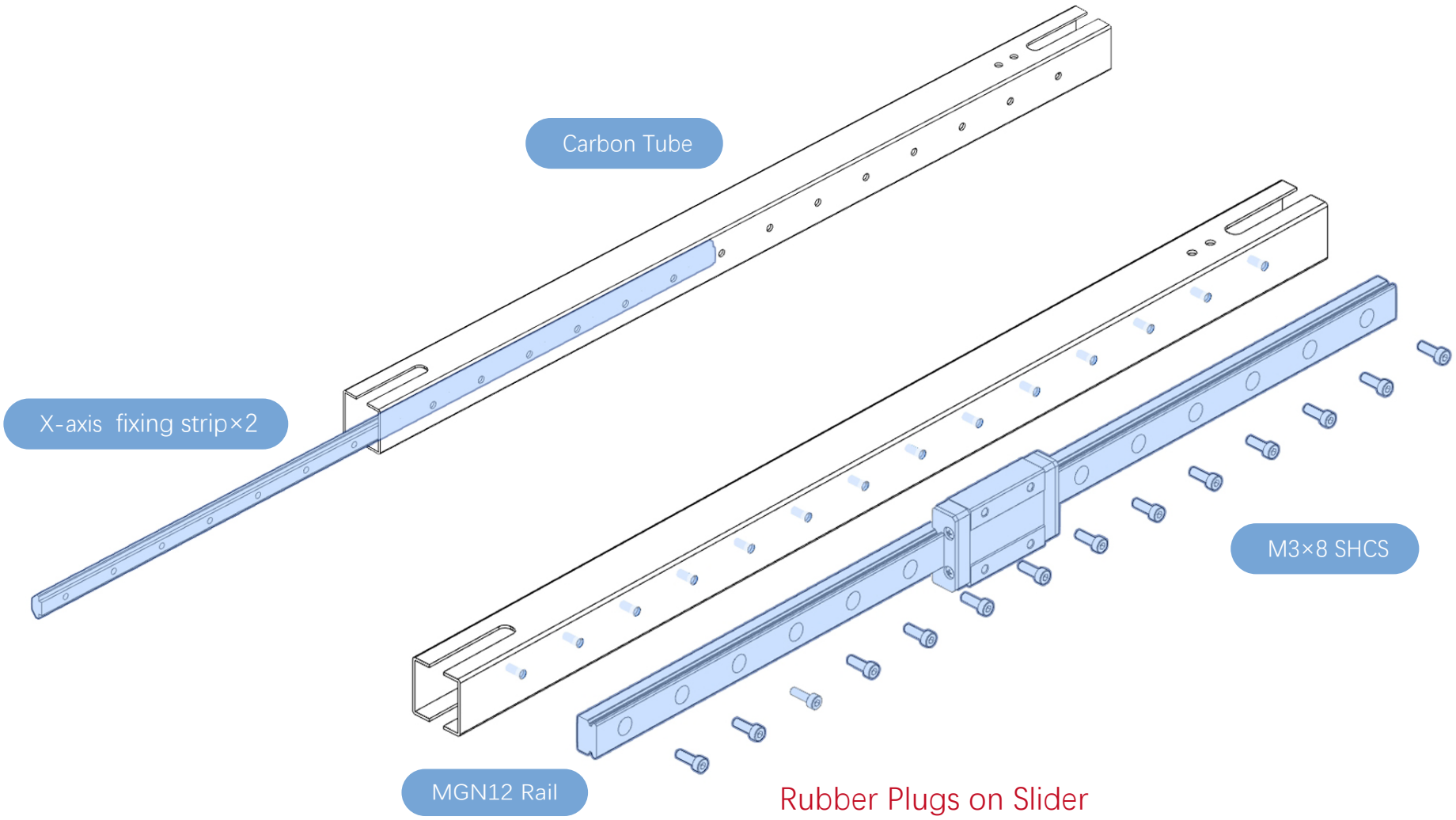

Idler isolation pillar
F695 Bearing×2
695 Bearing×1
GT2 Idler
bearing isolation pillar

Don't tighten the screws too much

The X carbon tube will be installed in the next steps

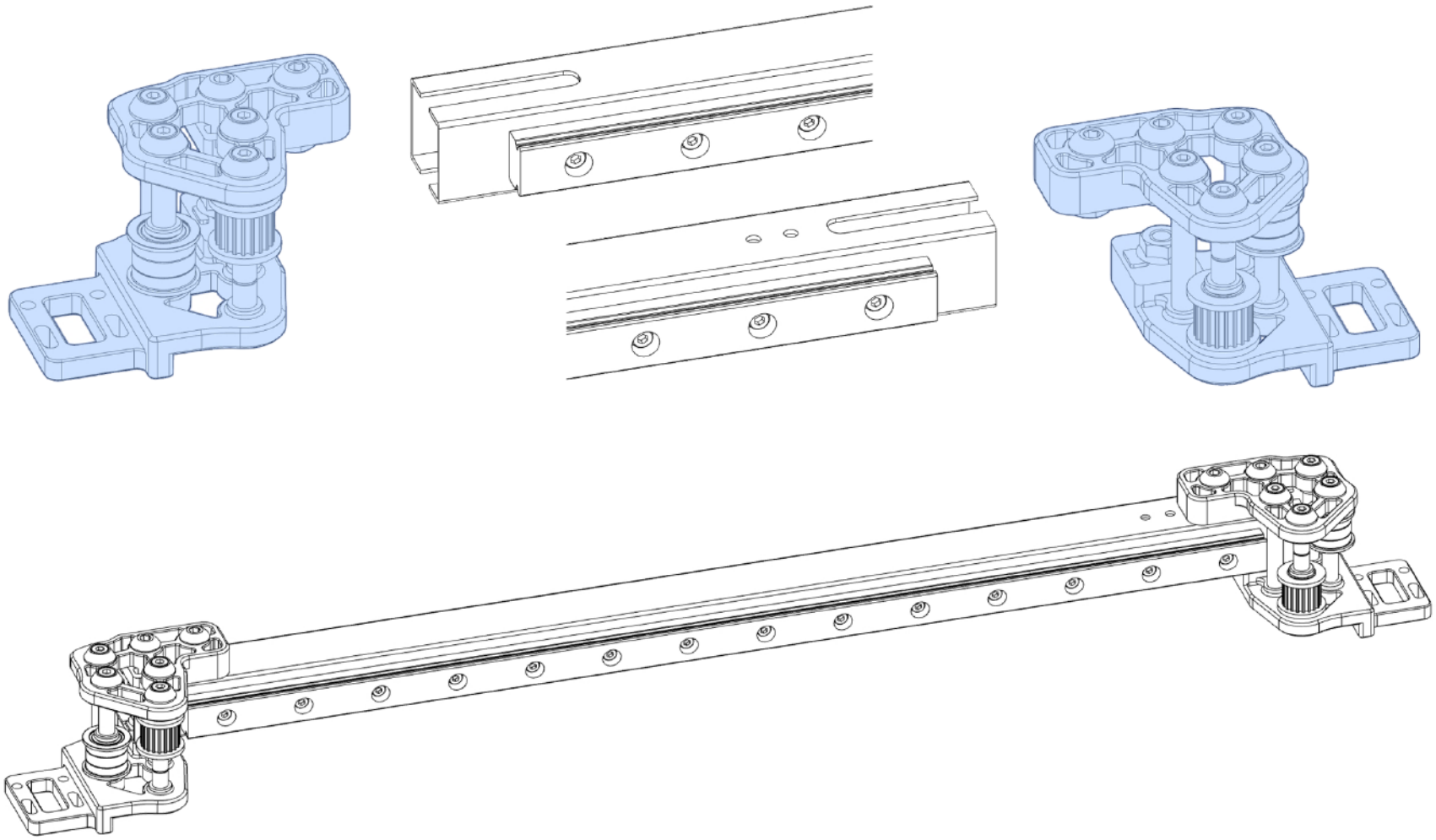


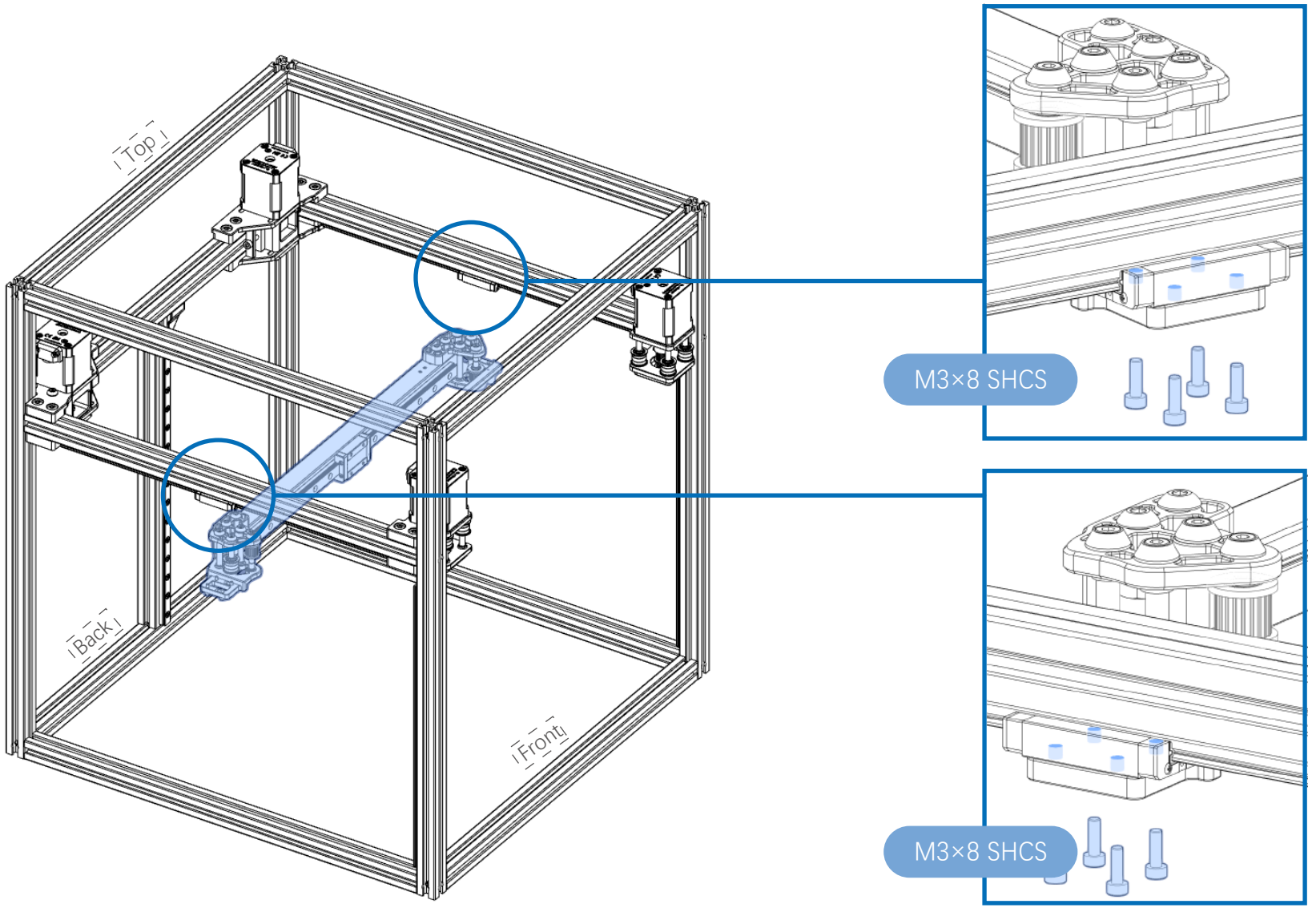




Rubber Plugs on Slider

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.

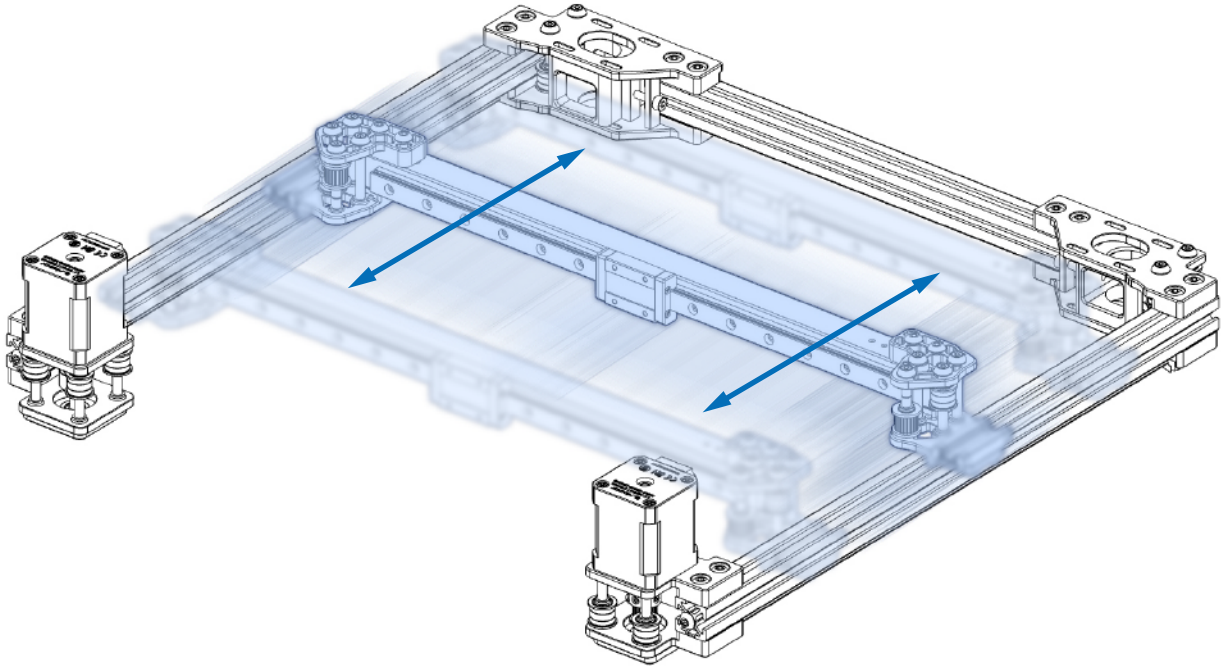


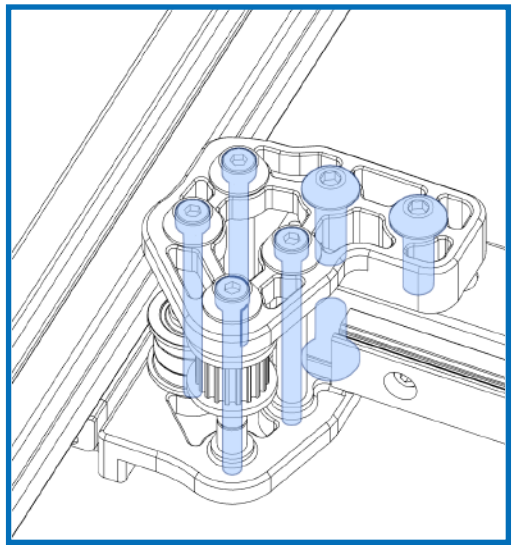

Top
Back
Front
M3×8 SHCS
M3×8 SHCS

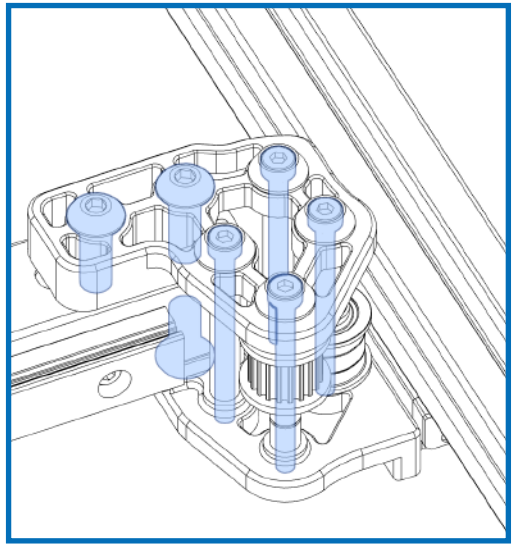
Adjusting the X-Axis Joints

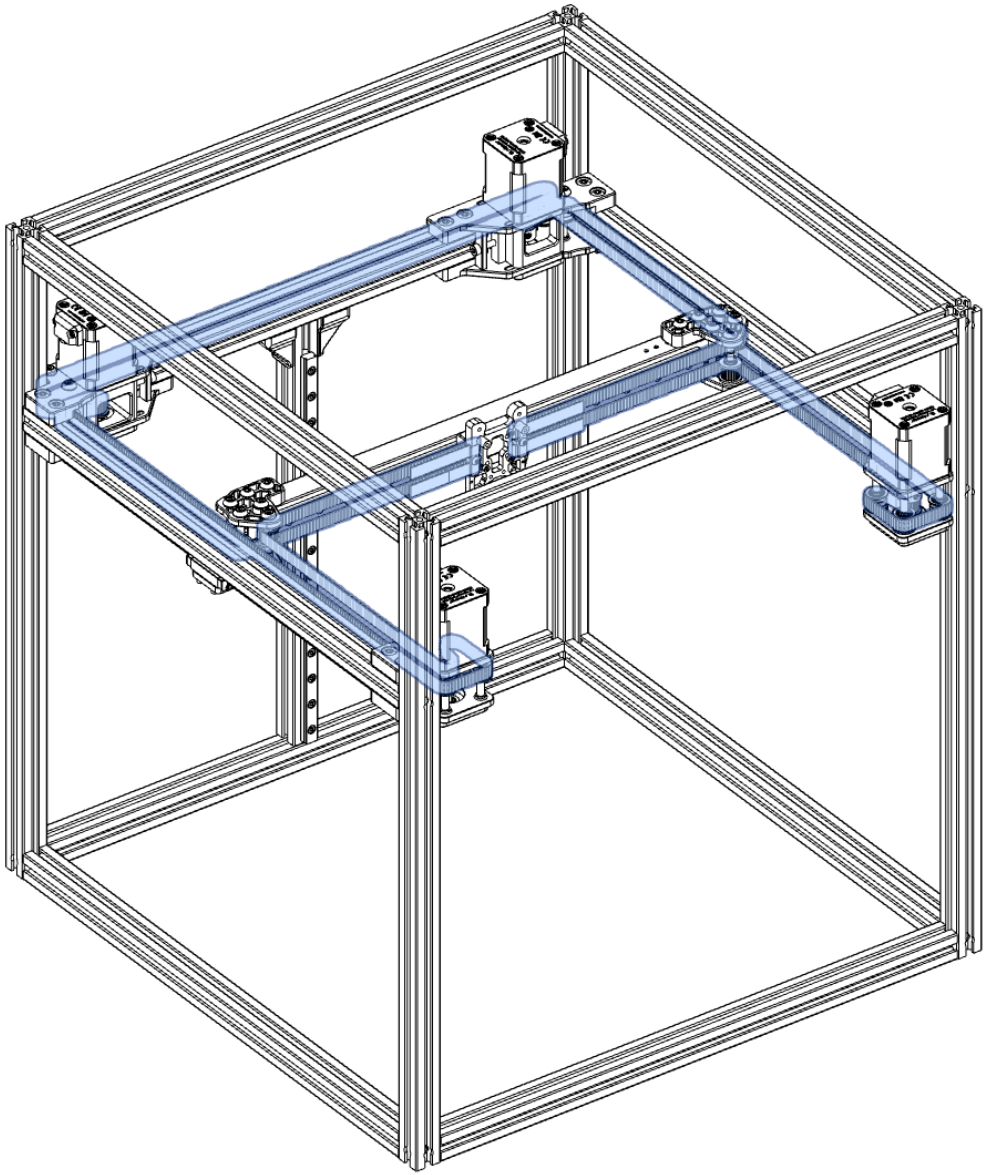
Slide the X-axis part quickly along the Y-axis. Since the screws on both sides of the X-axis joints are not fully tightened, the joints will automatically adjust their positions on the carbon tubes during the sliding process. Once you feel the movement is very smooth and without any resistance, you can fully tighten the screws on both sides of the X-axis joints.

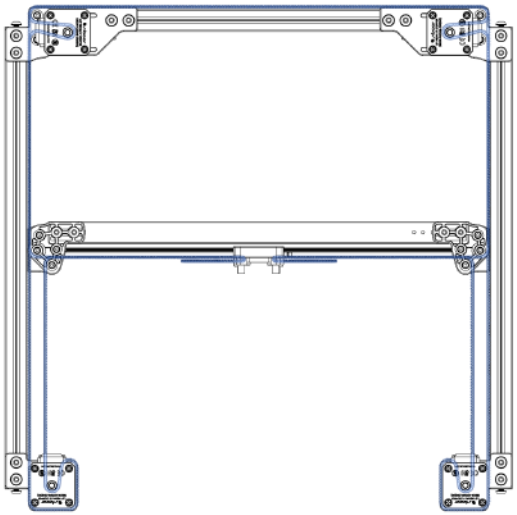
Don't forget to tighten the M5×12 BHCS screws at the bottom; otherwise, they may become loose and fall off during high-speed machine operation.

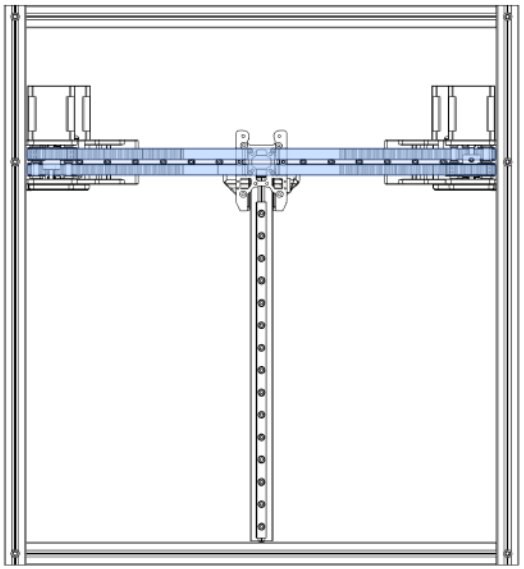






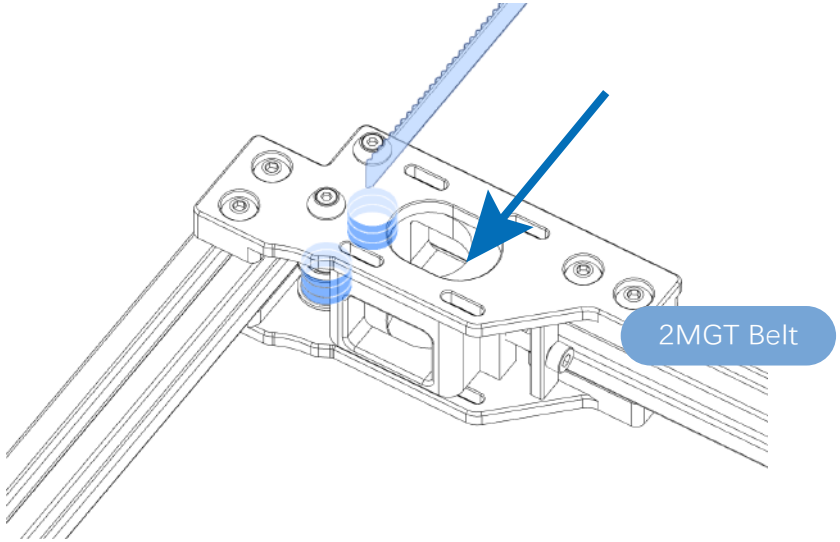


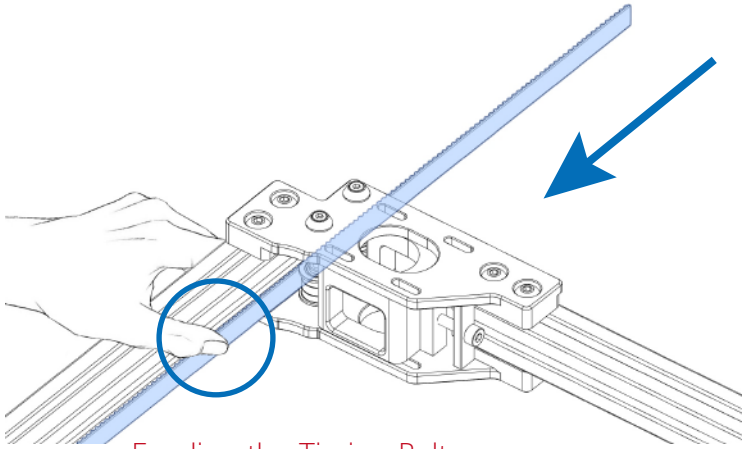




Instruction

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



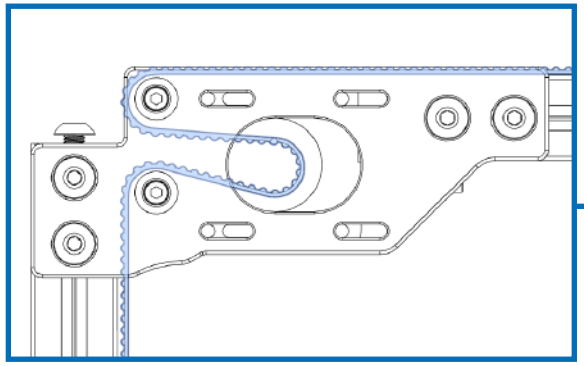


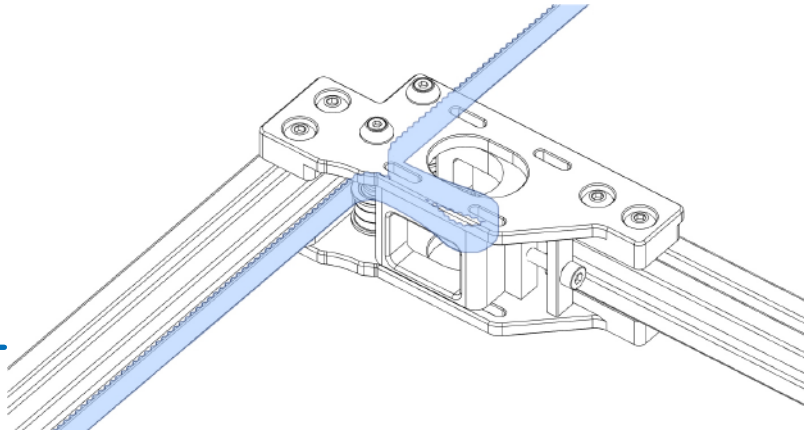
Feeding the Timing Belt

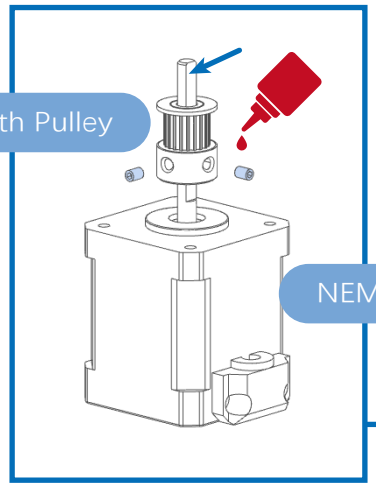
Hold the timing belt at the exit point and continue feeding it until the belt is forced into place between the two sets of bearings under pressure.

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.

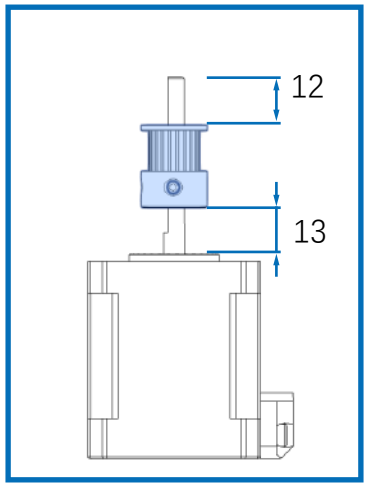






Direction

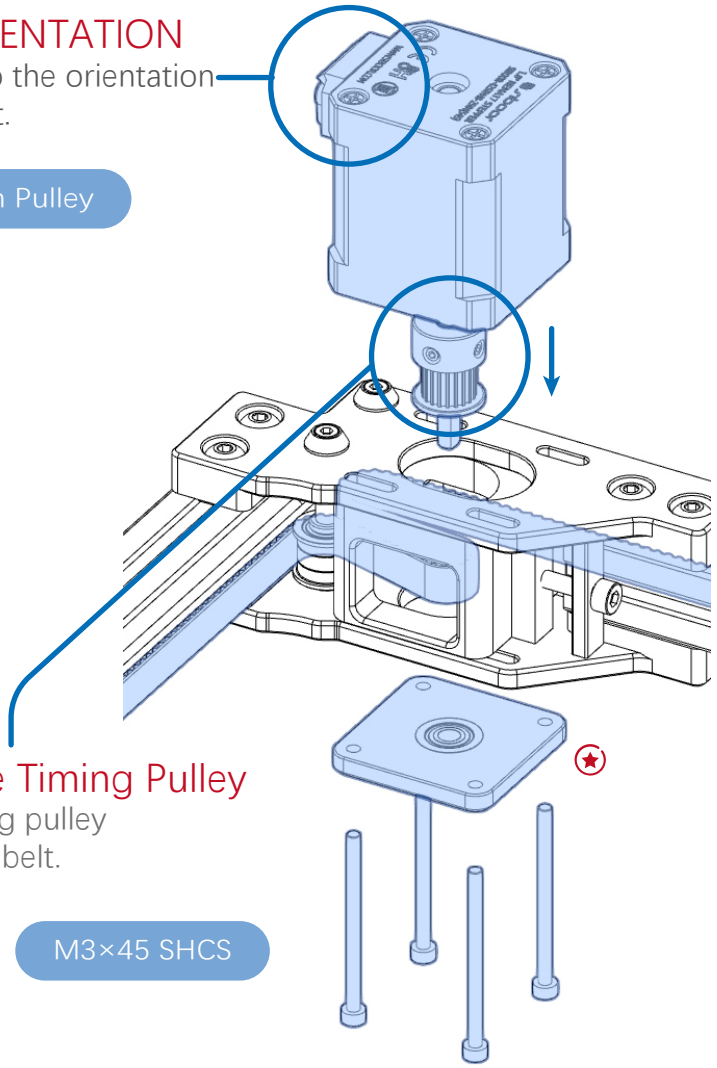
The set screws should align with the notch on the motor shaft.



MOTOR ORIENTATION

Pay attention to the orientation of the cable exit.

GT2 20 Tooth Pulley



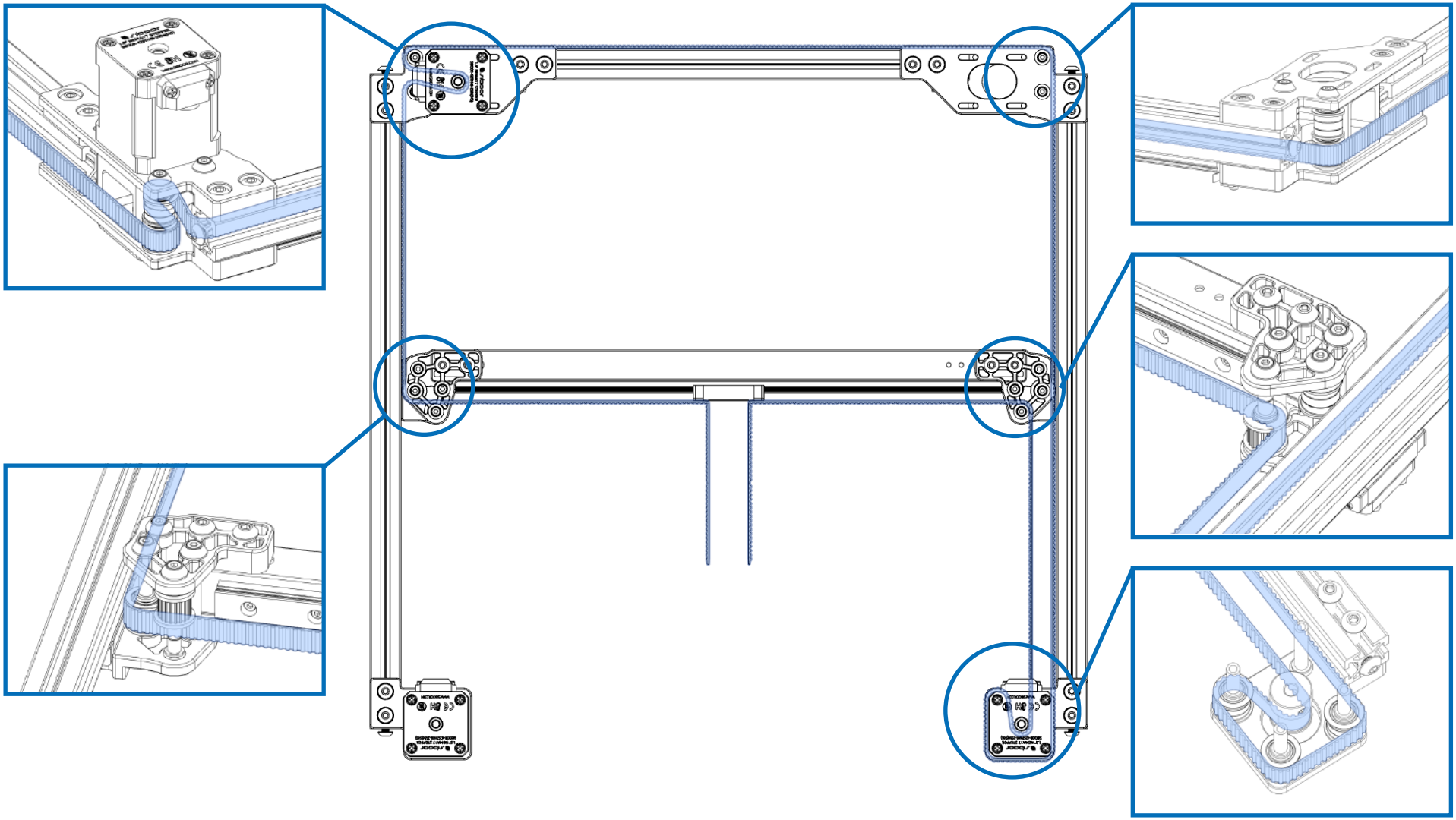
Inserting the Timing Pulley

Insert the timing pulley into the timing belt.

M3×45 SHCS

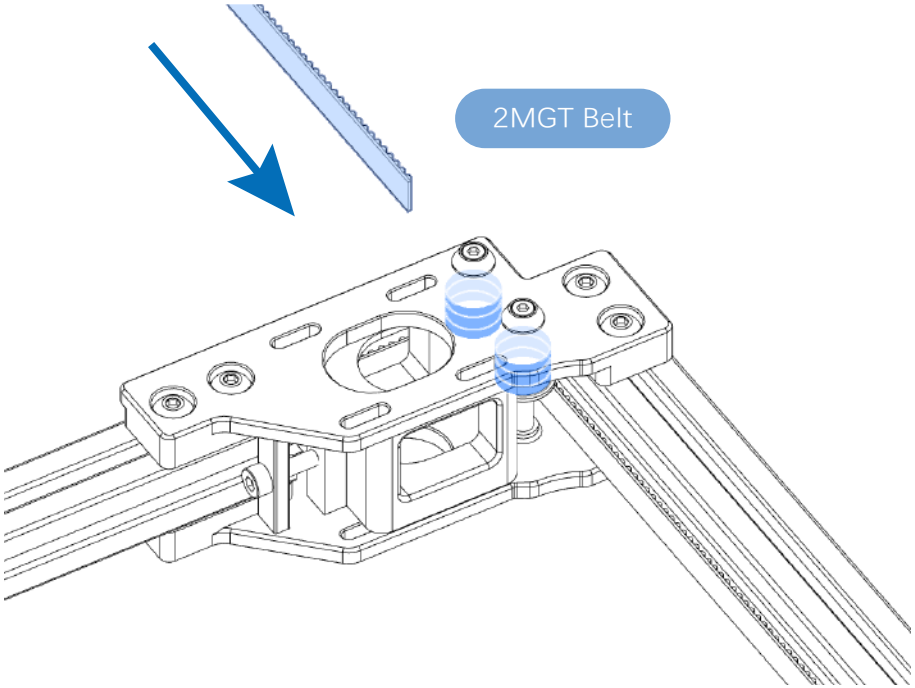
Thread locker

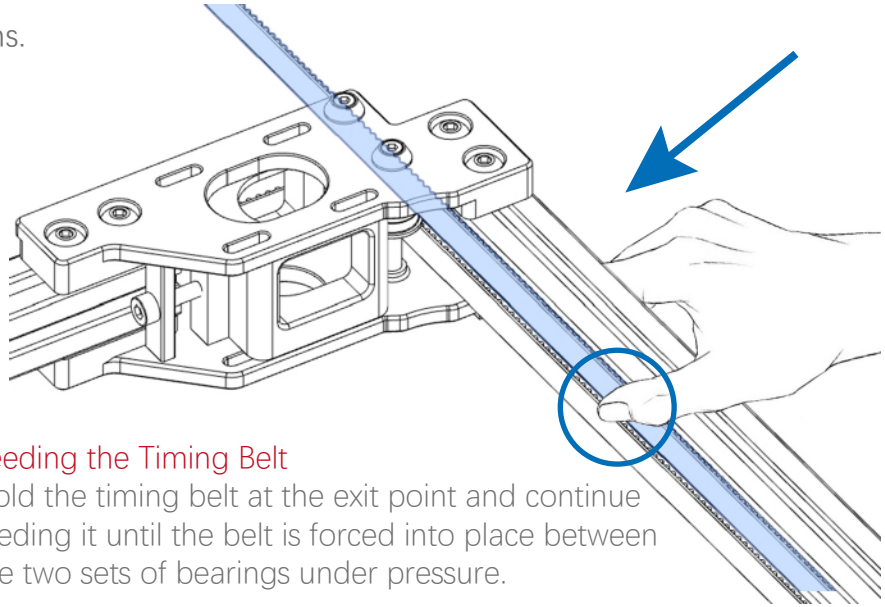
Consider adding threadlocker for the specific screw (e.g., the Voron motor mount screw).
this screw often loosens and causes tension issues. Note that some threadlockers might lock too tightly for future adjustments.
If threadlocker is unavailable, you can temporarily skip this step.



Temporarily Hiding the Frame Extrusion

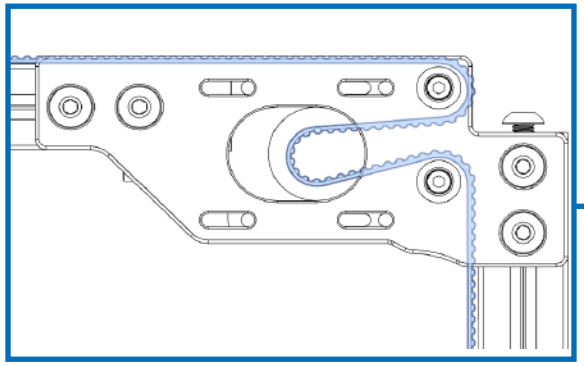
To provide a clear demonstration of the timing belt installation steps, we will temporarily hide the frame extrusion in the subsequent sections.

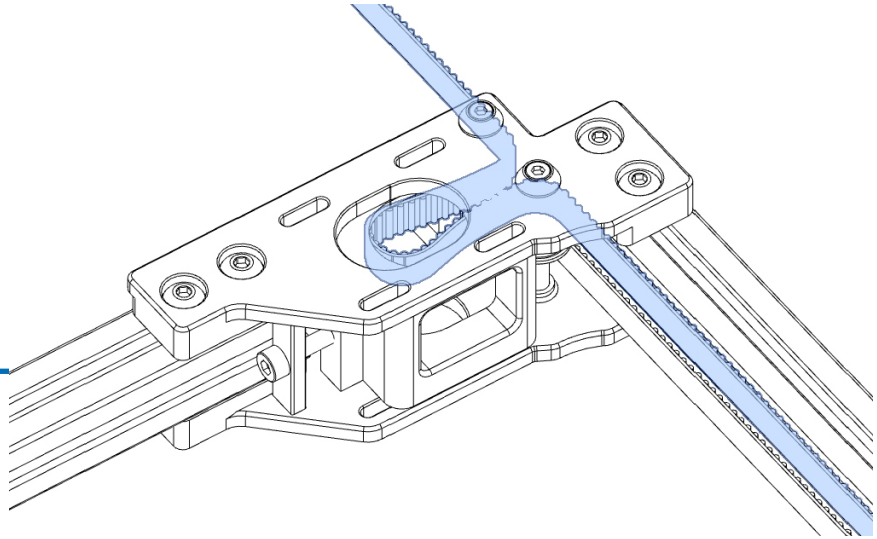


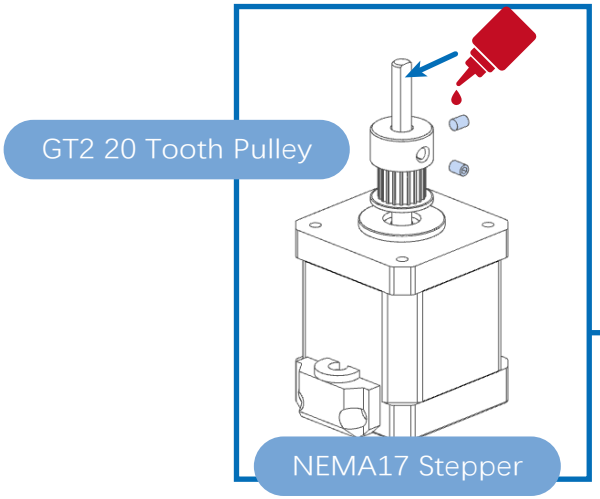


Feeding the Timing Belt

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.

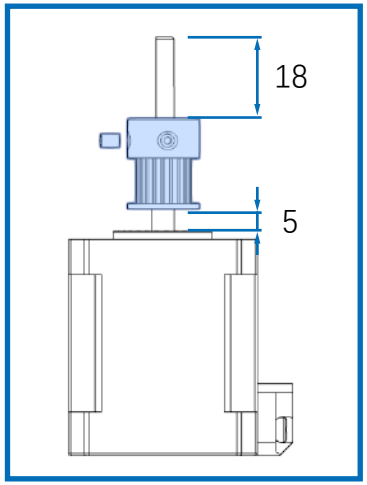






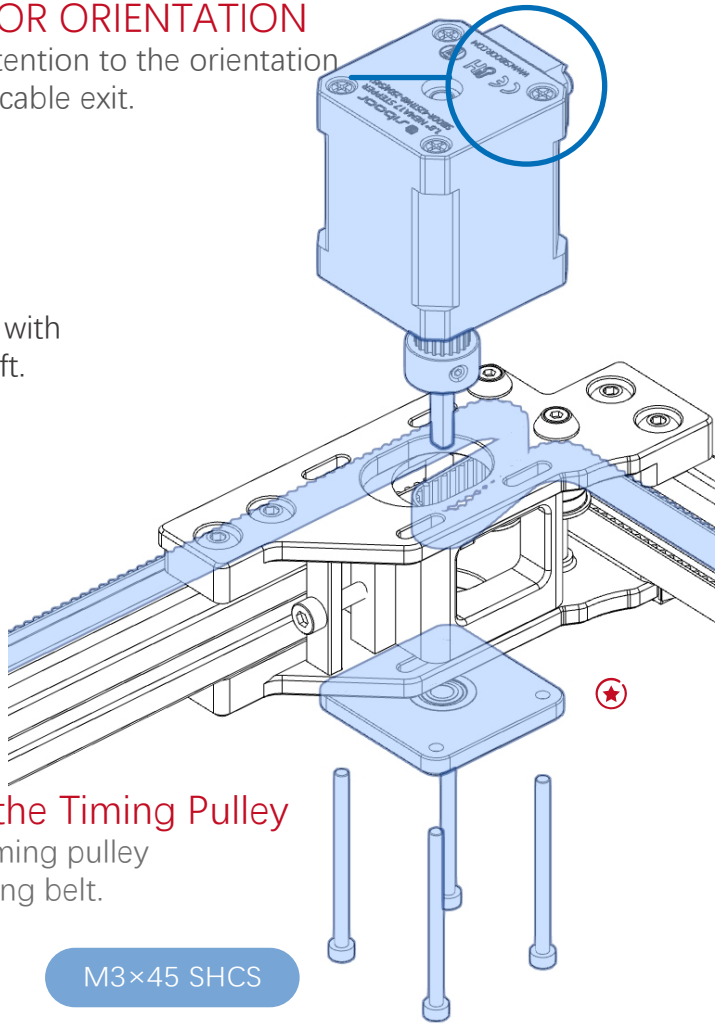
Direction

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



MOTOR ORIENTATION

Pay attention to the orientation of the cable exit.



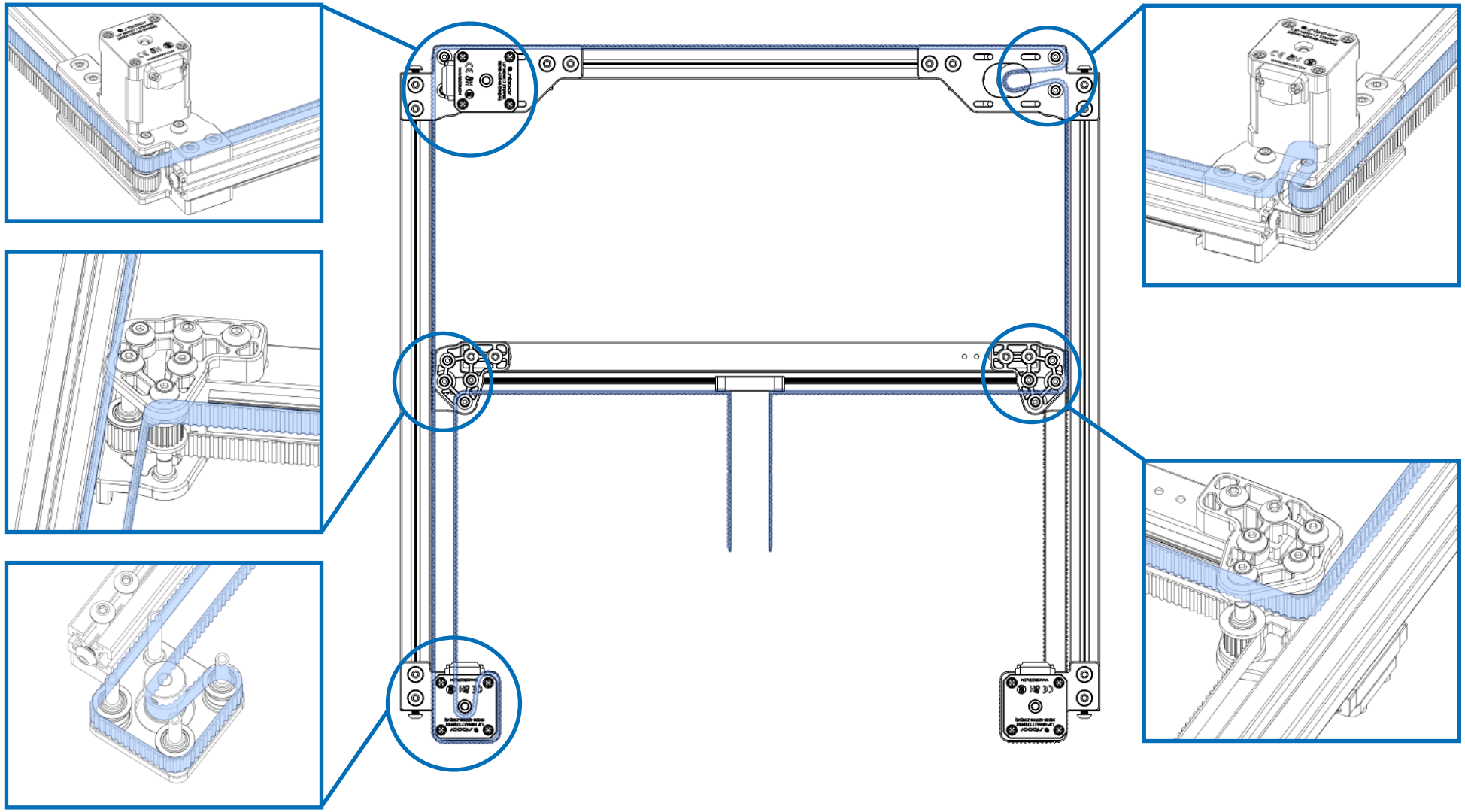
Inserting the Timing Pulley

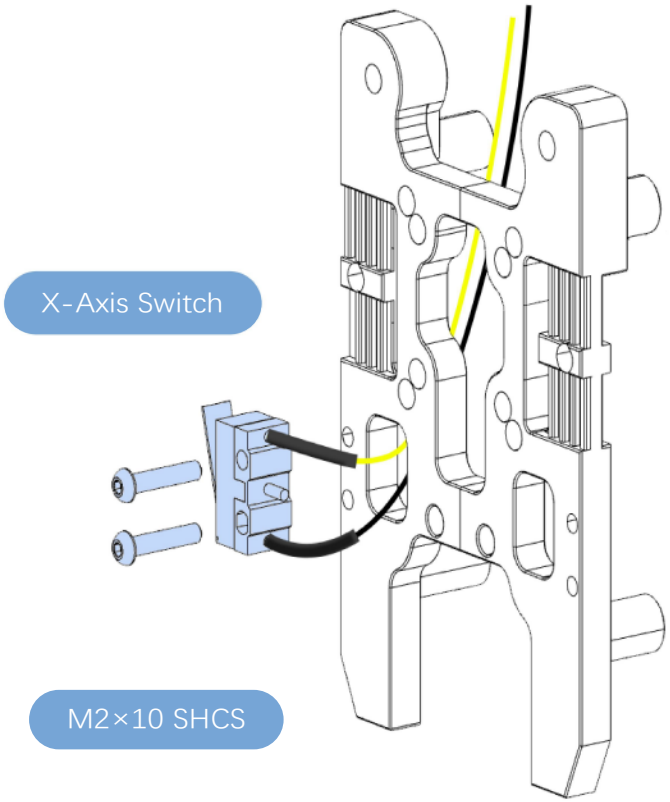
Insert the timing pulley into the timing belt.

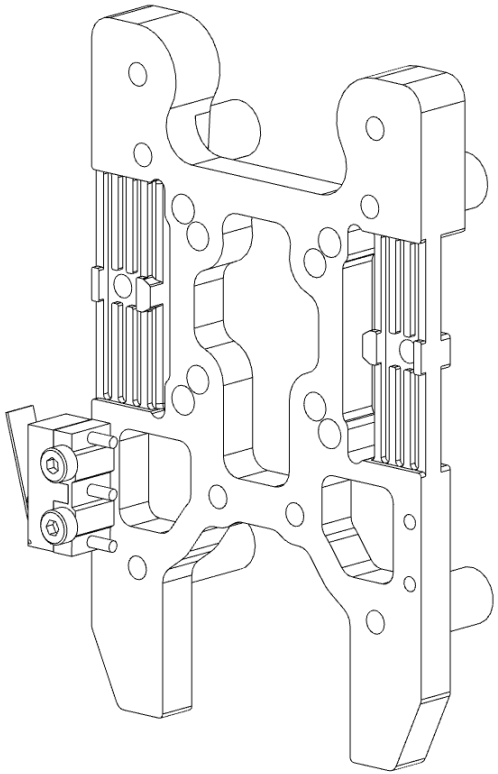
M3×45 SHCS

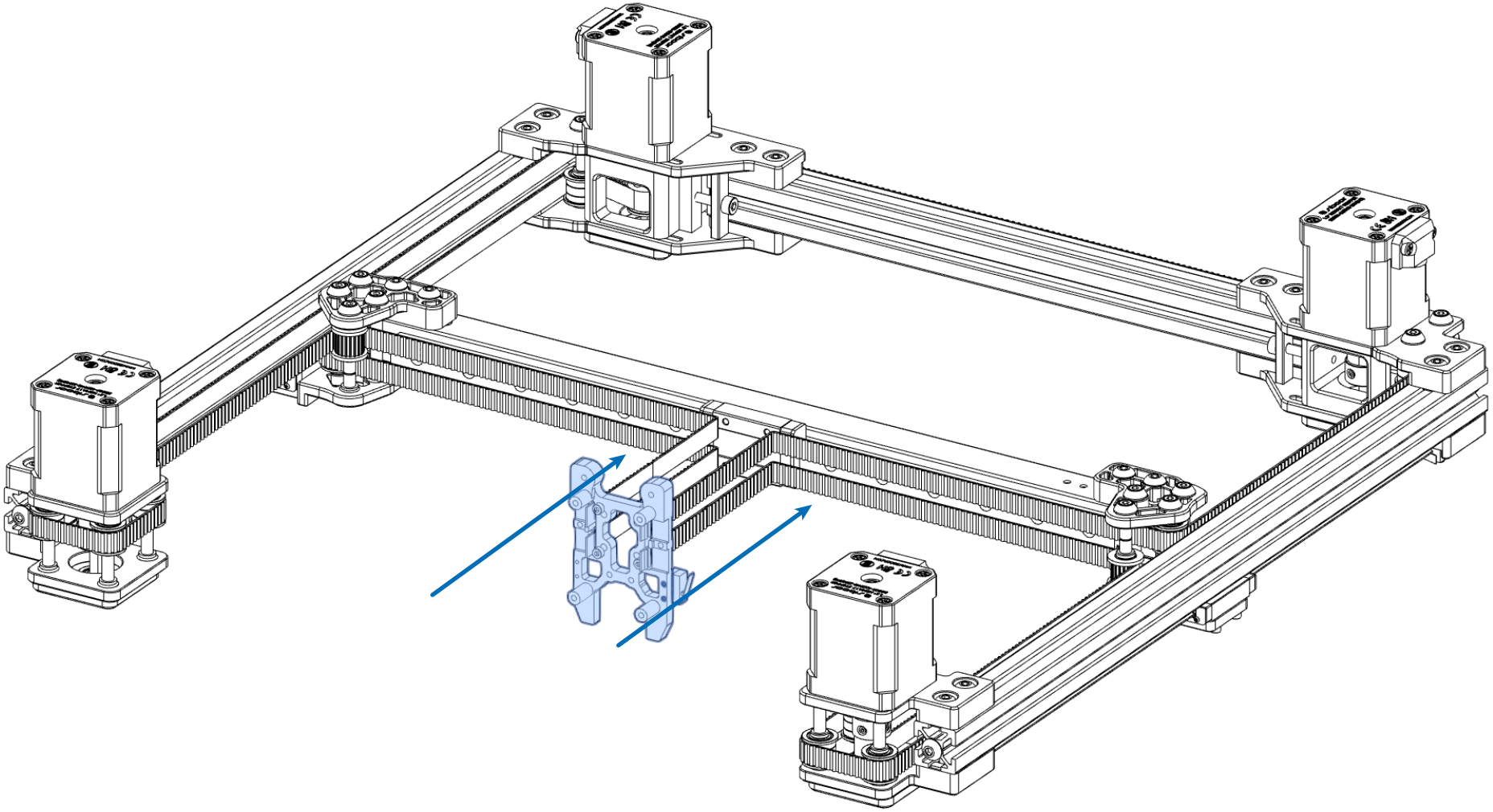
Thread locker

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 threadlocker is unavailable, you can temporarily skip this step.



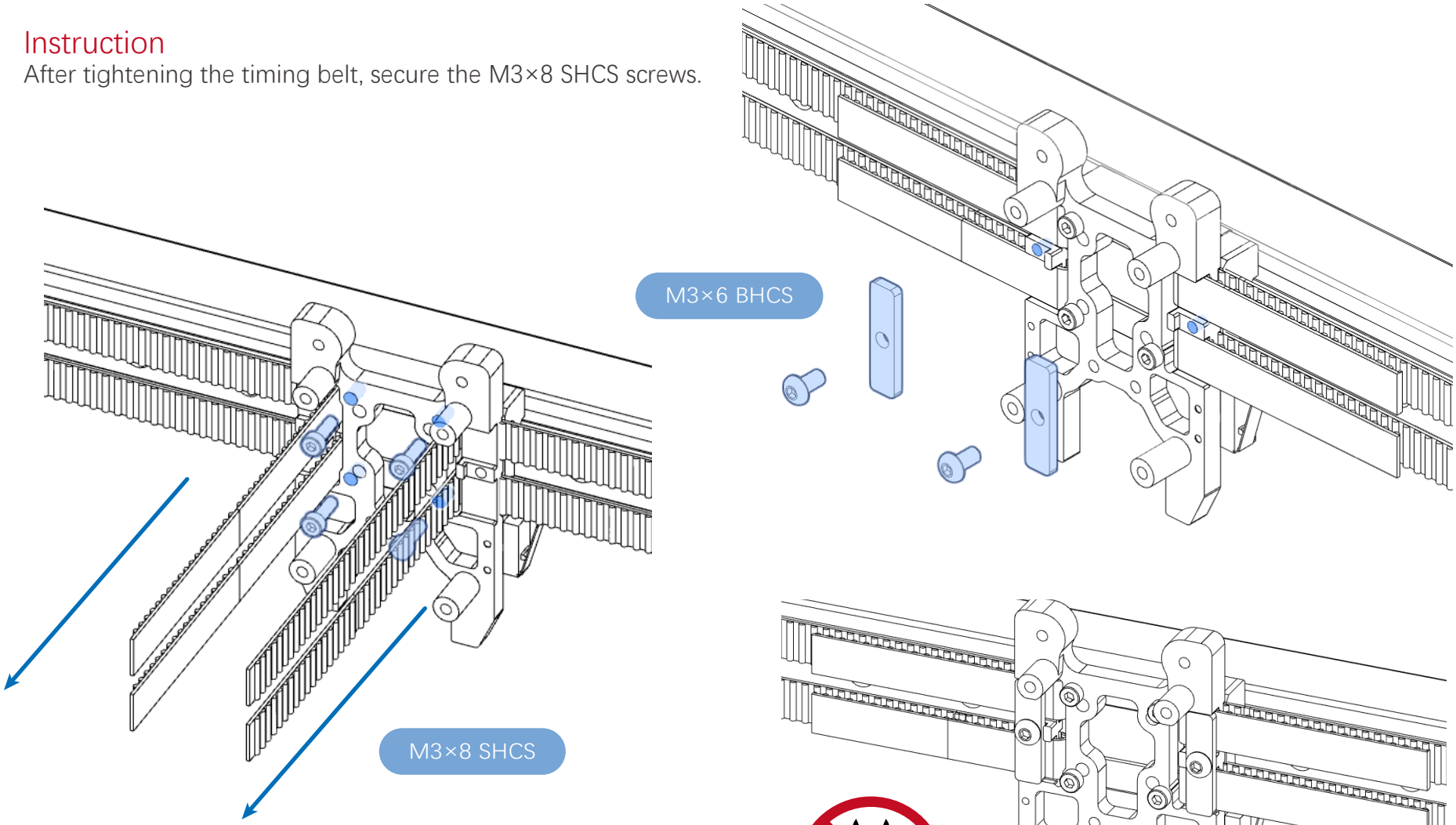

X-Axis Switch
M2×10 SHCS





Instruction

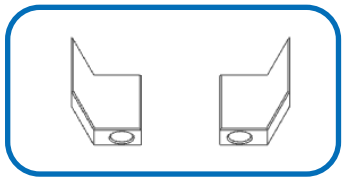
After tightening the timing belt, secure the M3×8 SHCS screws.



Do Not Cut the Timing Belt at This Time

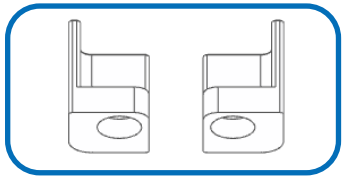
Wait for 24 Hours, Retighten the Timing Belt, Then Cut the Timing Belt

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



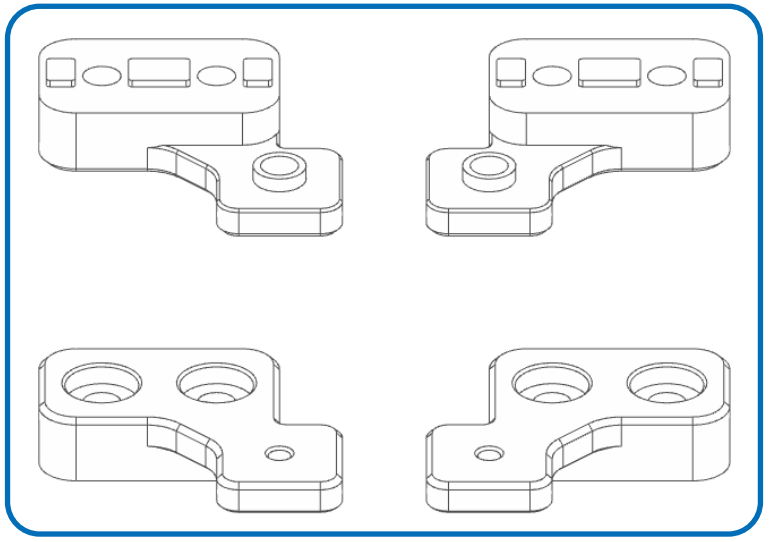
UHF Extension Block

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.



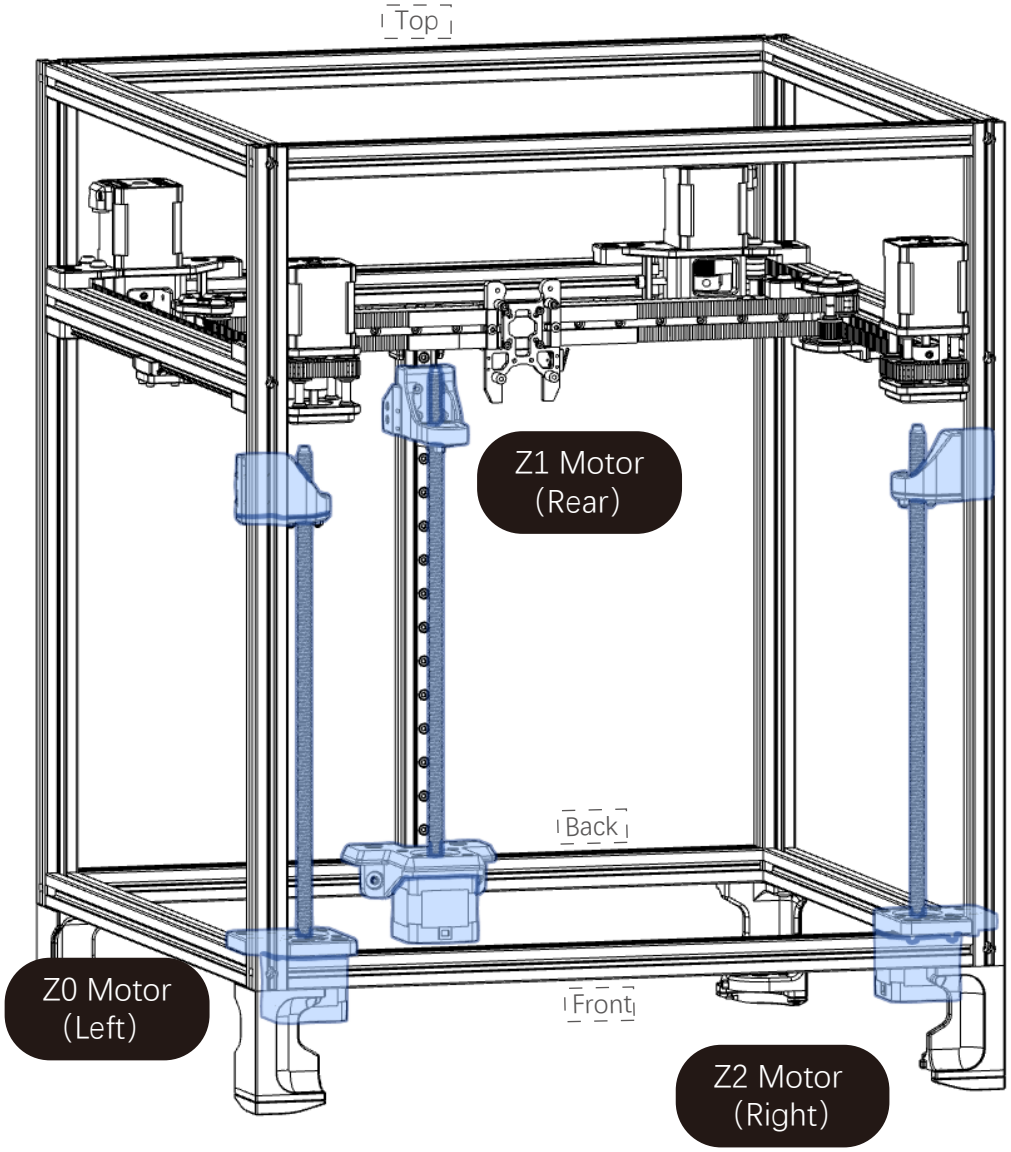
Front Idler Bracket for 2WD

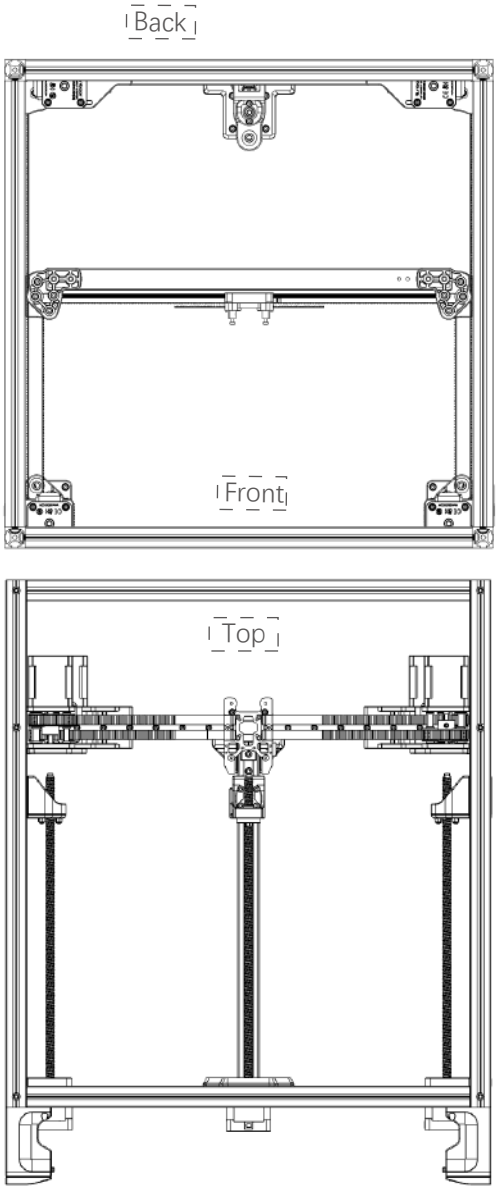
This is the front idler bracket for the 2WD system.
These parts aren't used when building AWD motion system

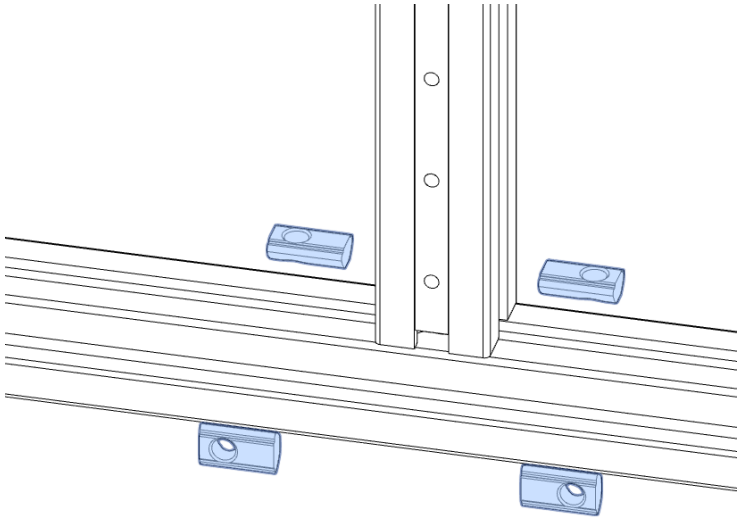
Take a Break

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

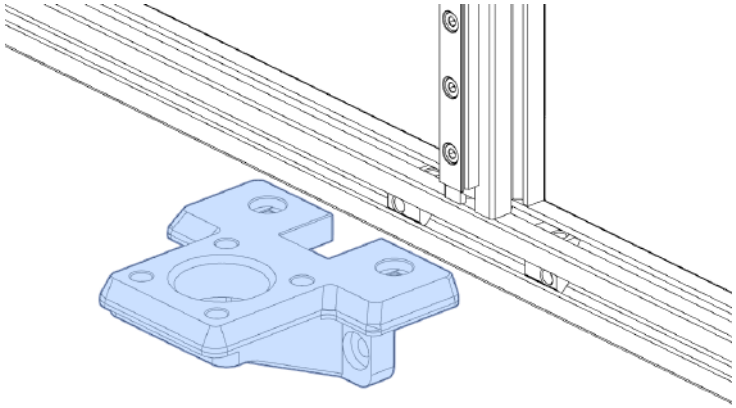
Waiting for the rendered image to fill...

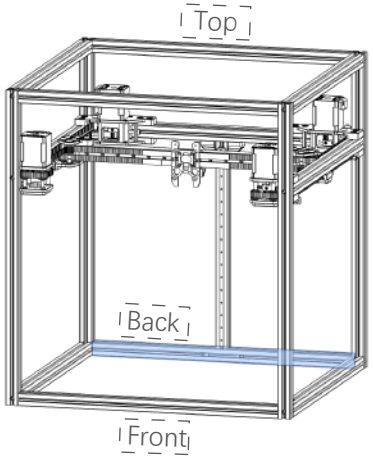

Top
Z1 Motor
(Rear)
Back
Z0 Motor
(Left)
Front
Z2 Motor
(Right)


Back
Front
Top

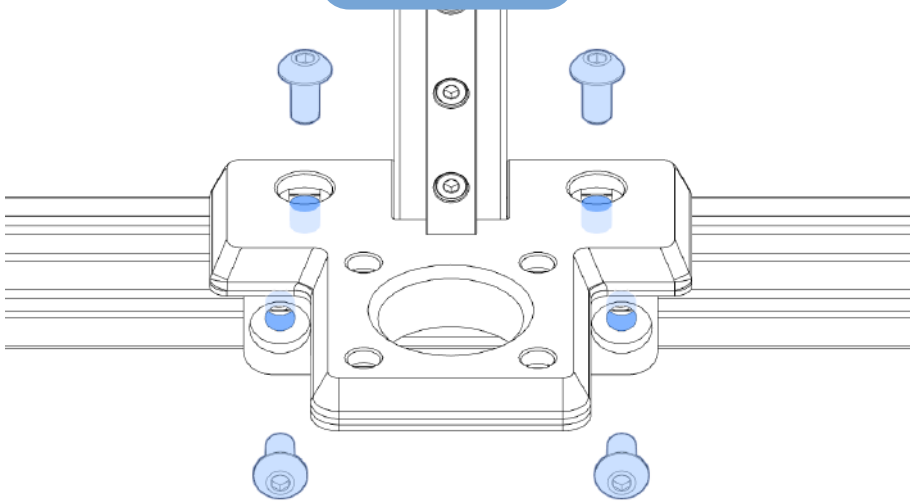


M5 T-Nut

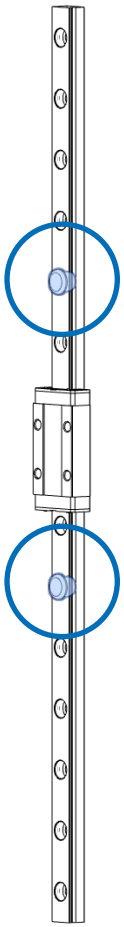


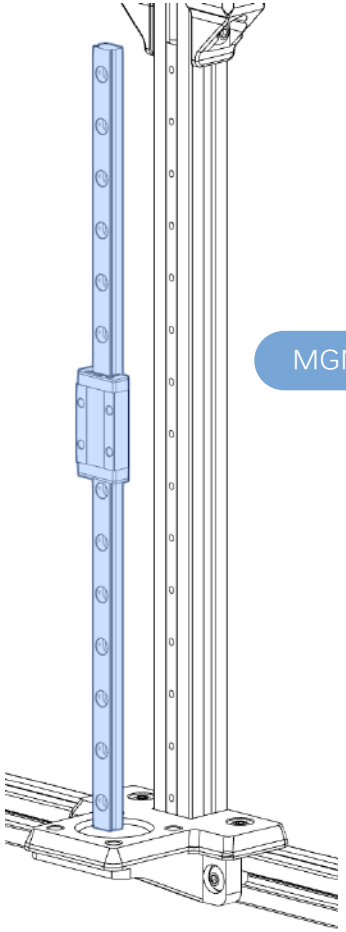


M5×10 BHCS

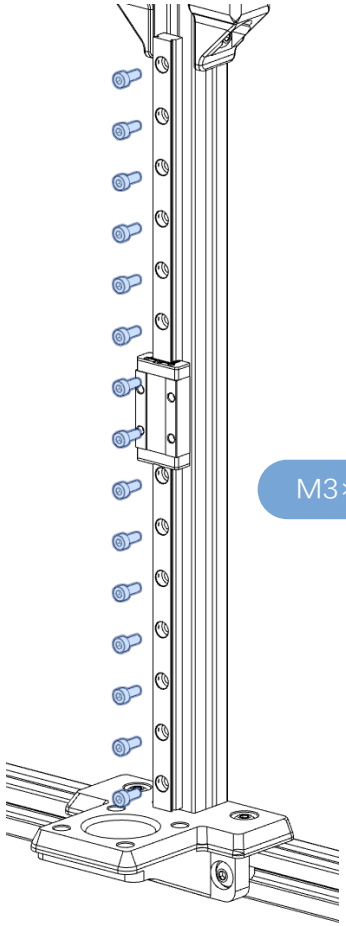


M5×10 BHCS





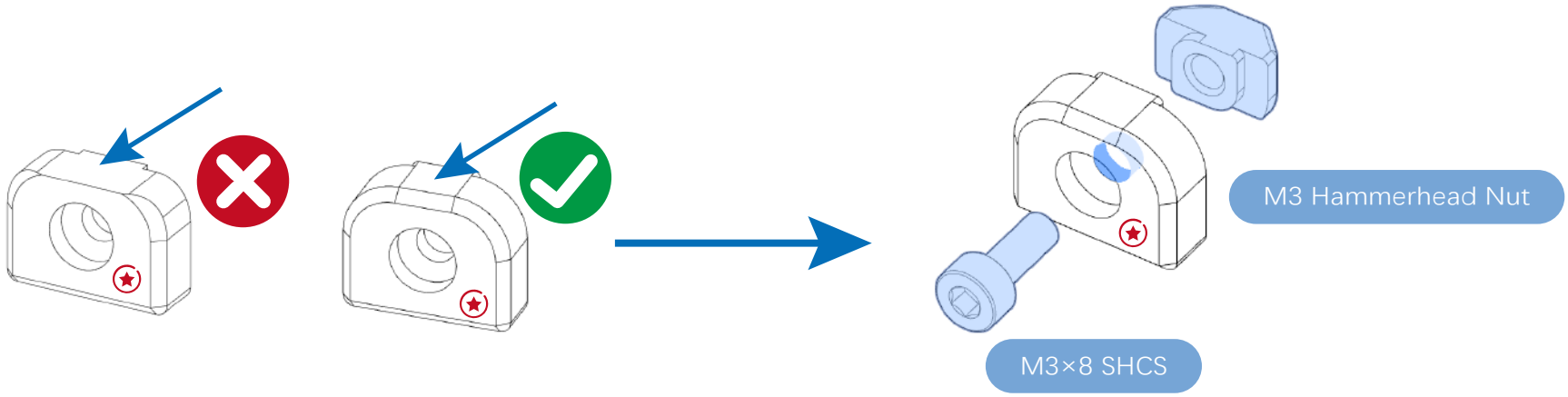
MGN9 Rail

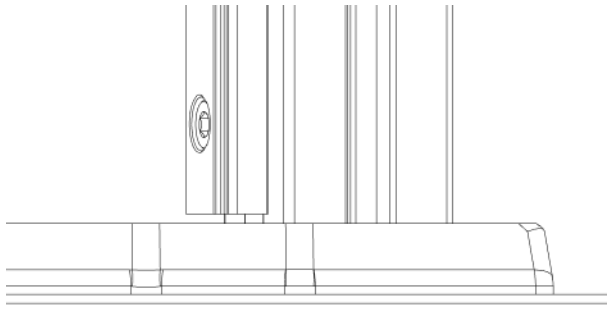


M3×8 SHCS

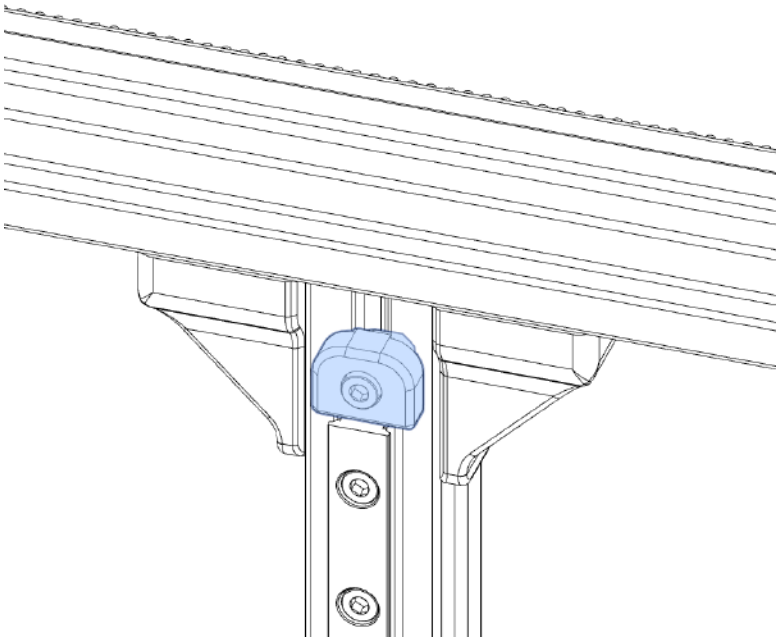
Black Rubber Plug on Guide Rail

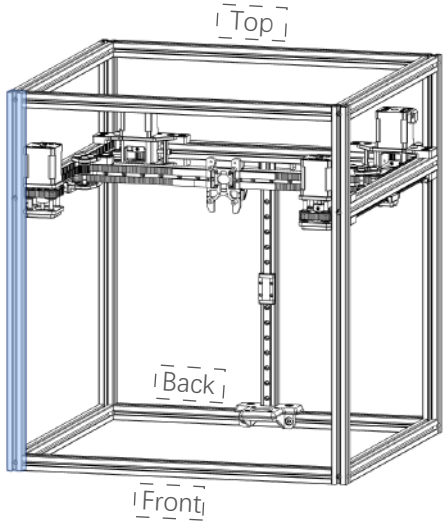
The black rubber plug on the guide rail effectively prevents the slider from accidentally falling off. Do not attempt to remove it before installing the screws. This will help you succeed.

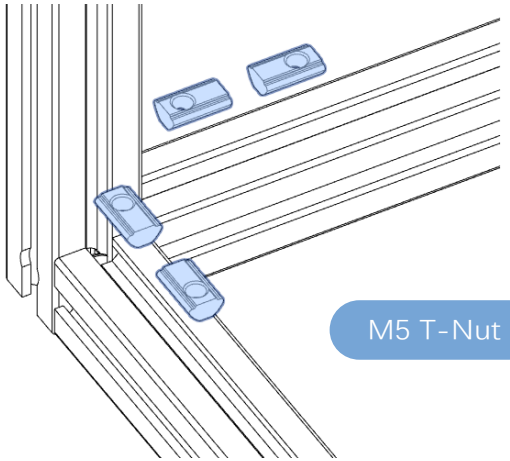


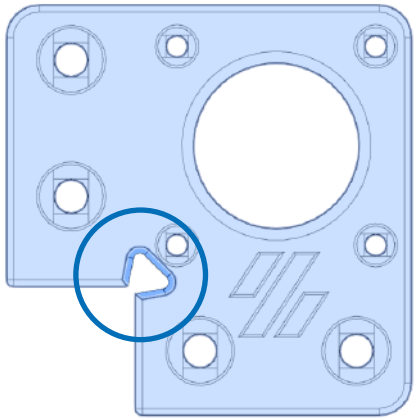


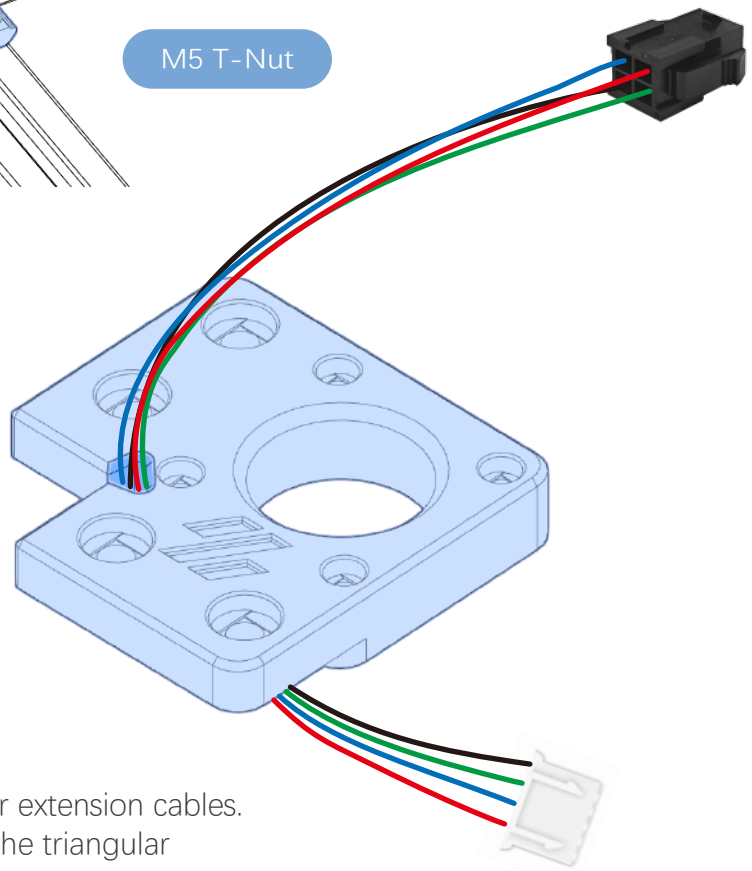
BOTTOM GAP
Leave a small gap between the printed part and the rail. 1-2mm is fine.





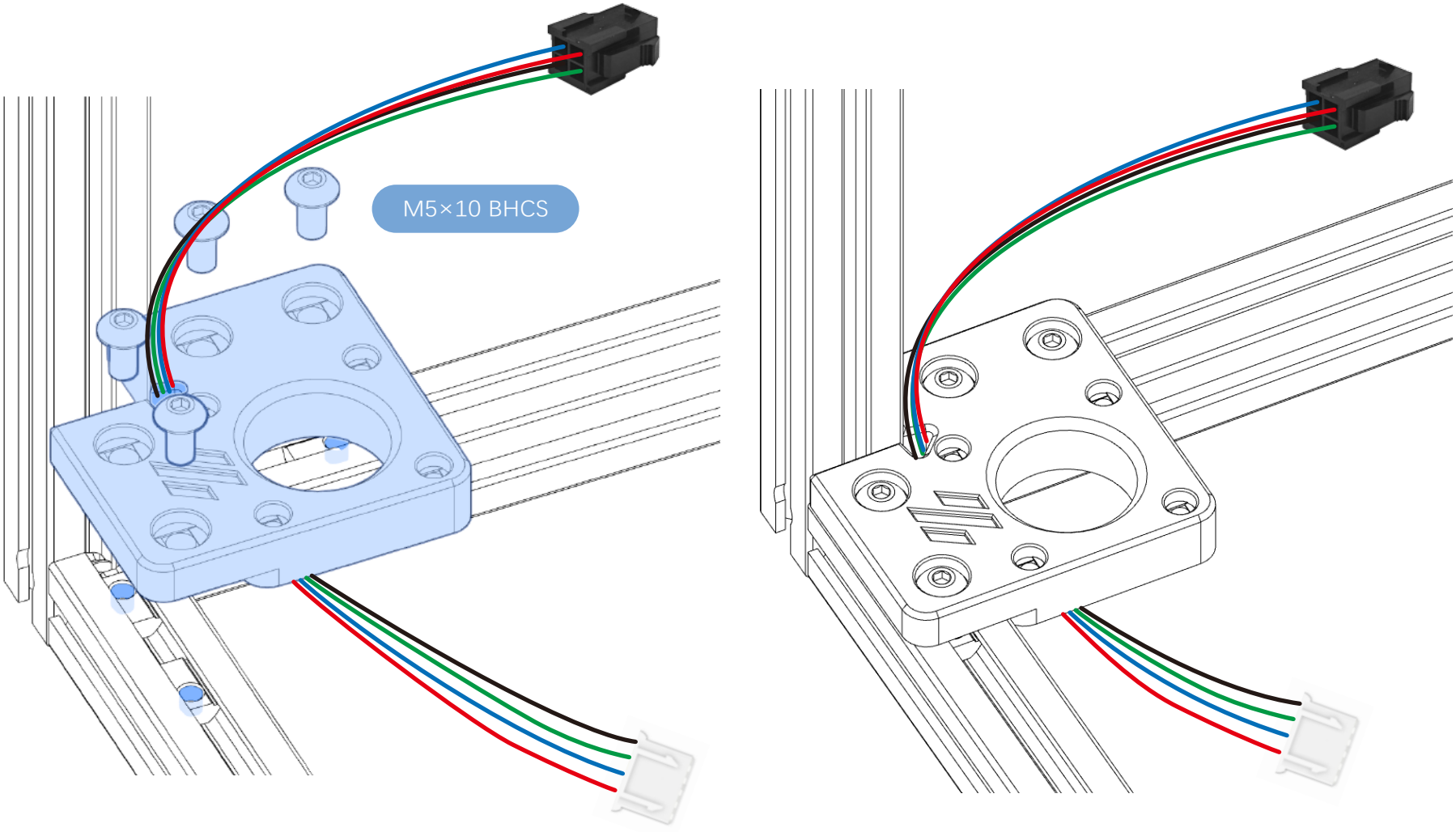


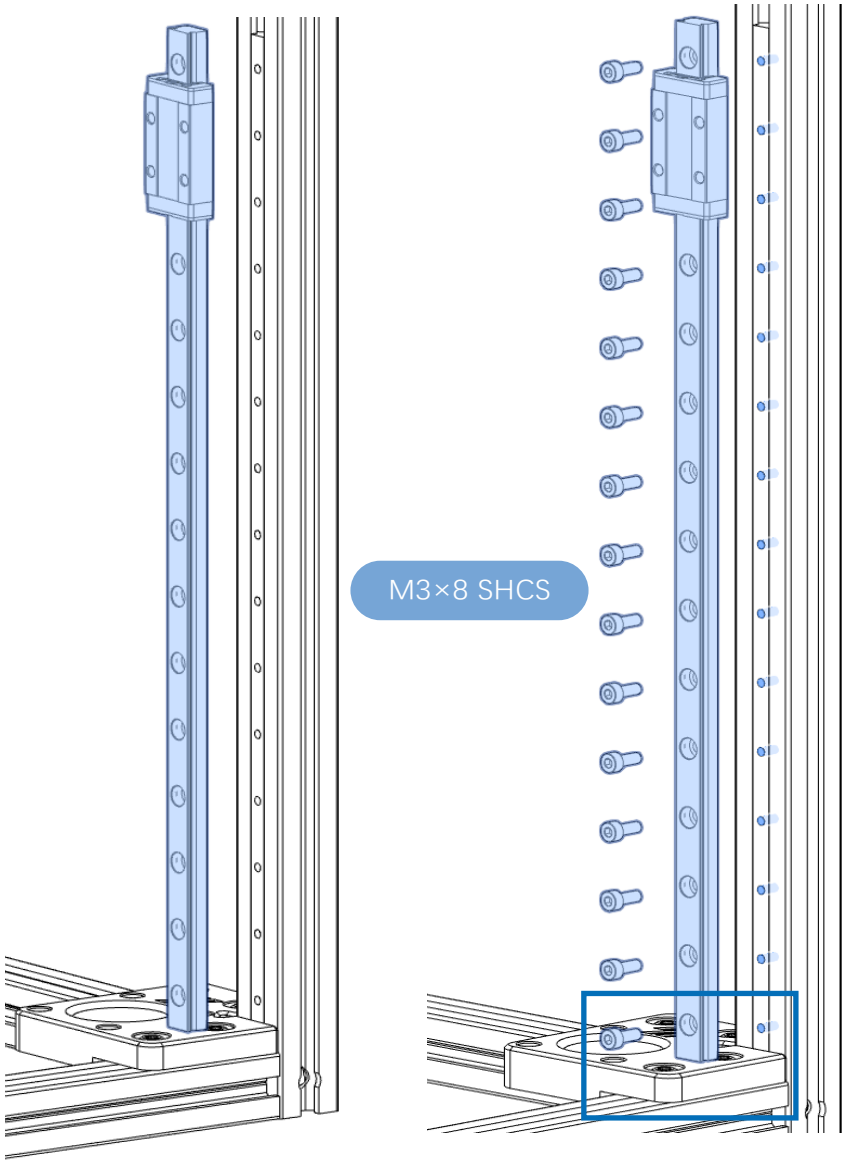


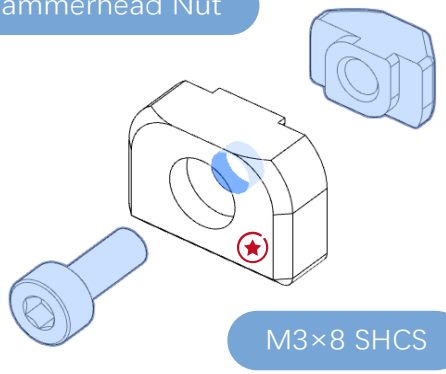


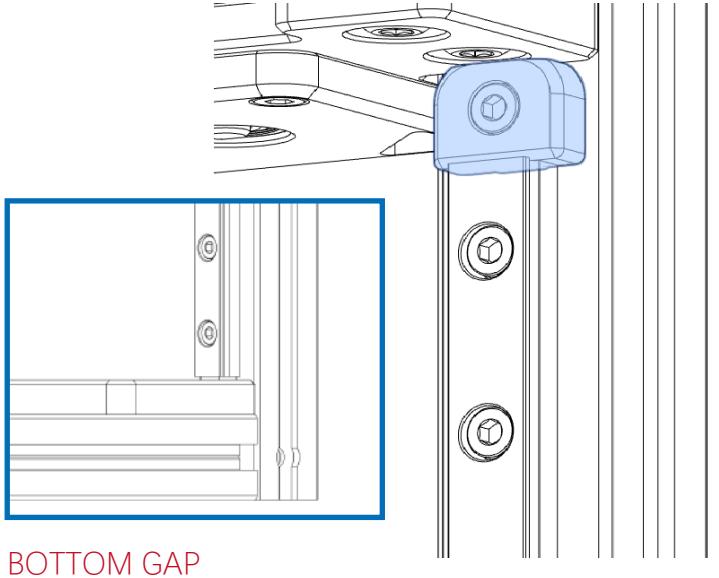
Installing AWD Motor Extension Cables

Sorry, but it really is 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.


M5×10 BHCS

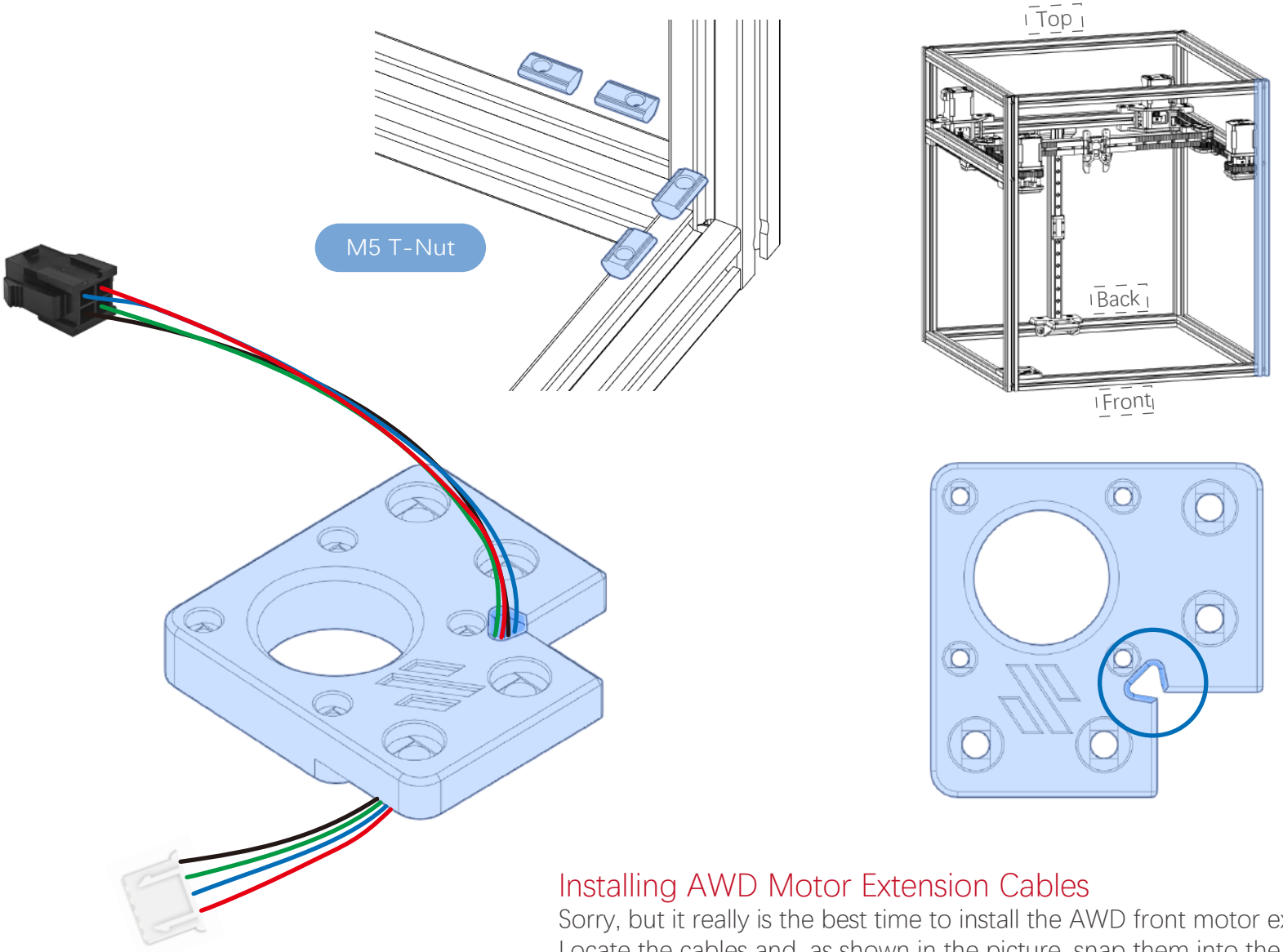






BOTTOM GAP

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



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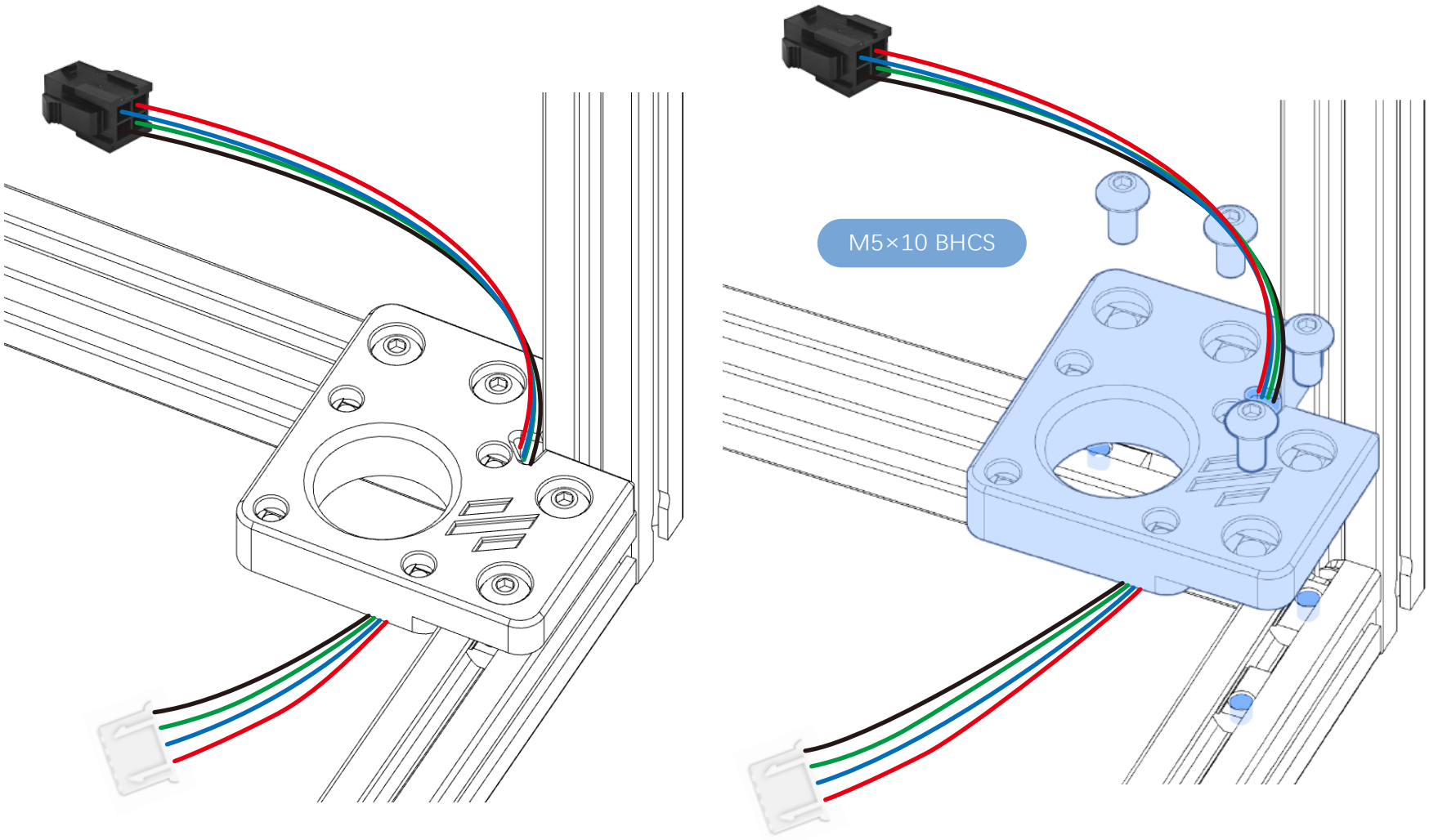
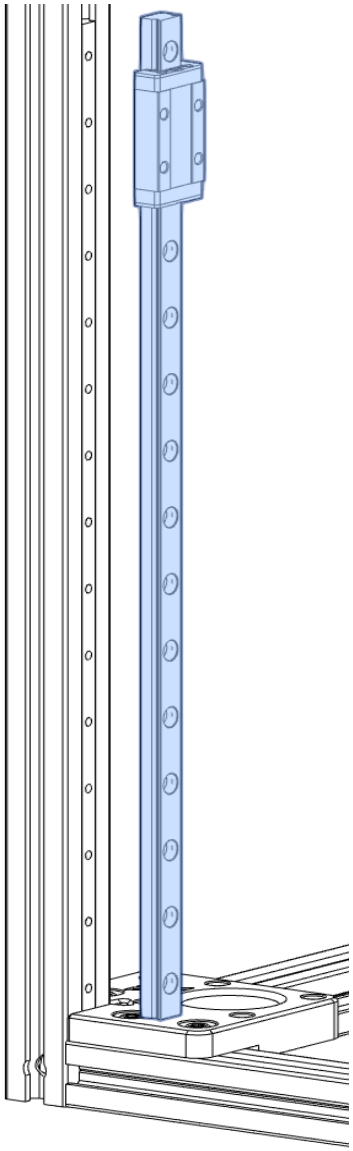
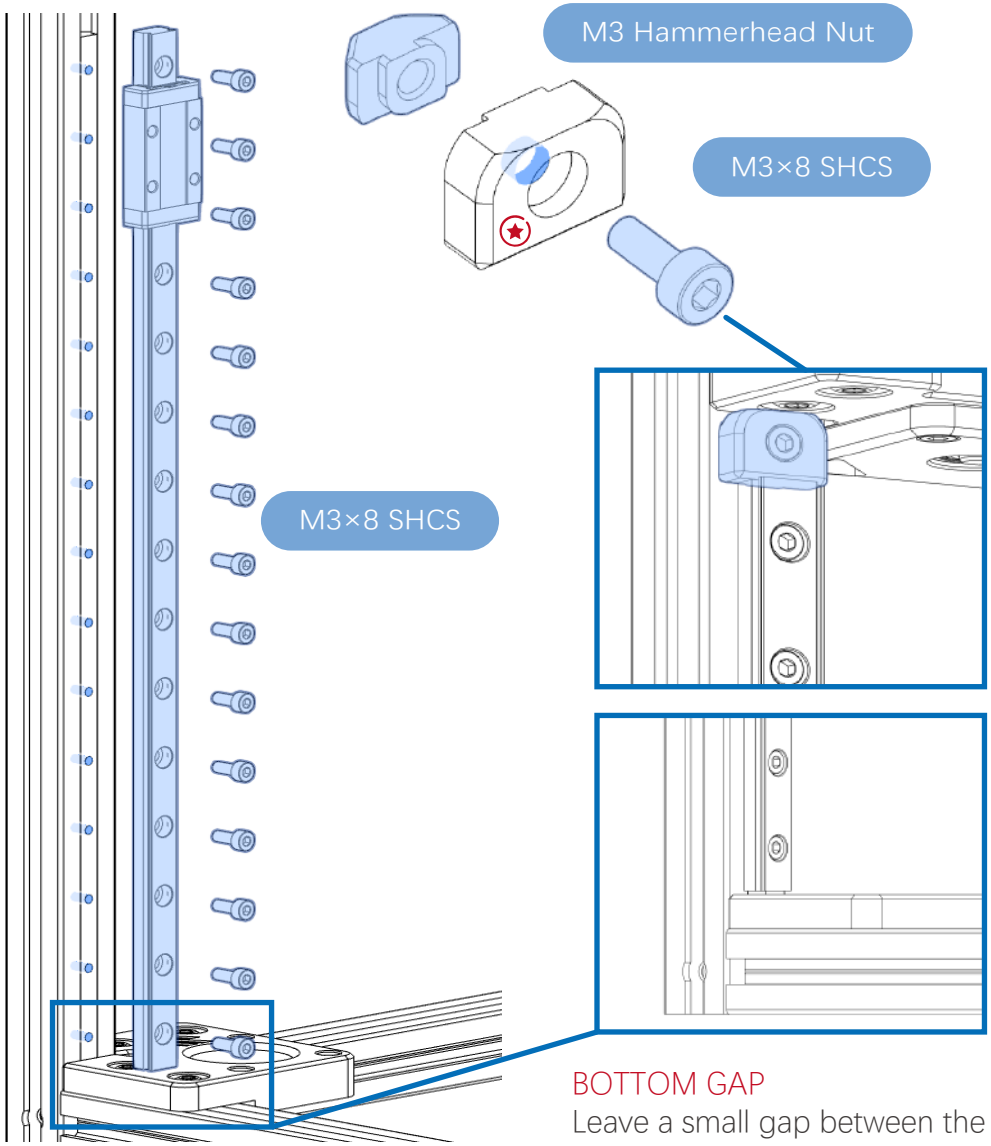

M5×10 BHCS





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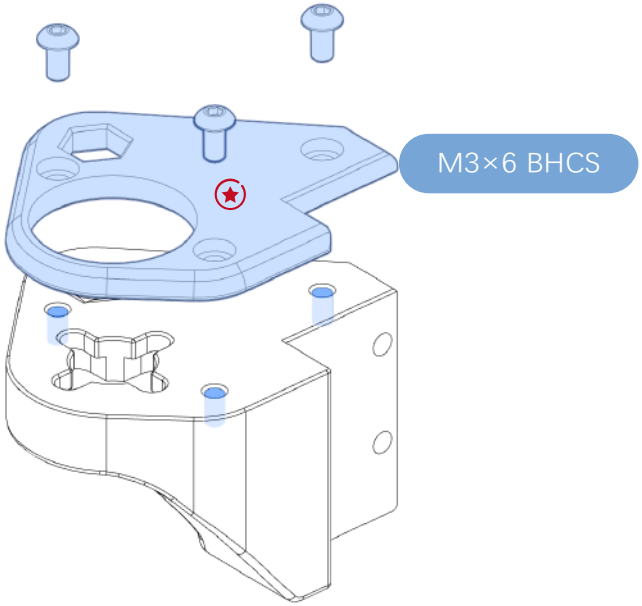
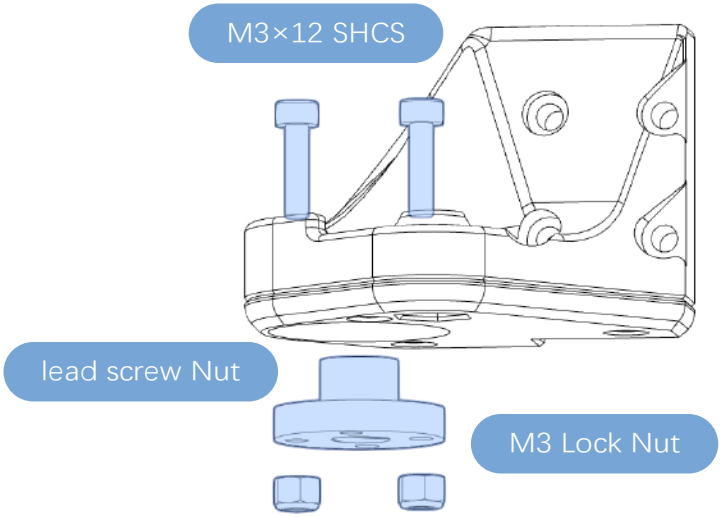
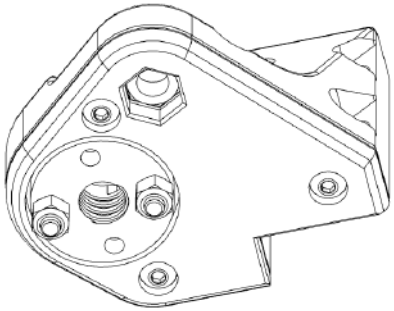
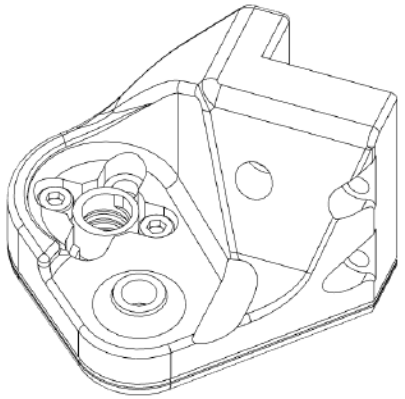


DON'T FULLY TIGHTEN

For best results do not tighten fully.

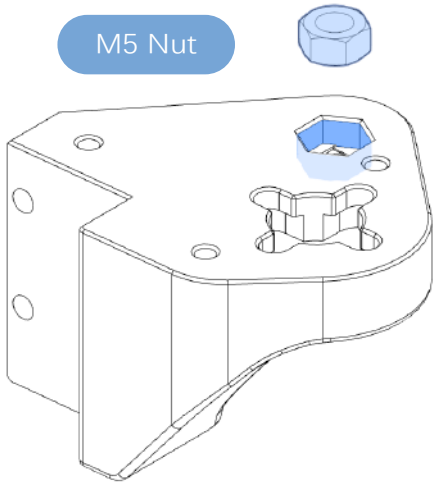


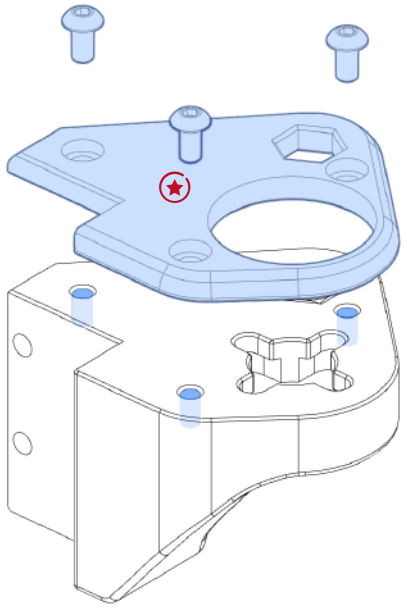




lead screw Nut?

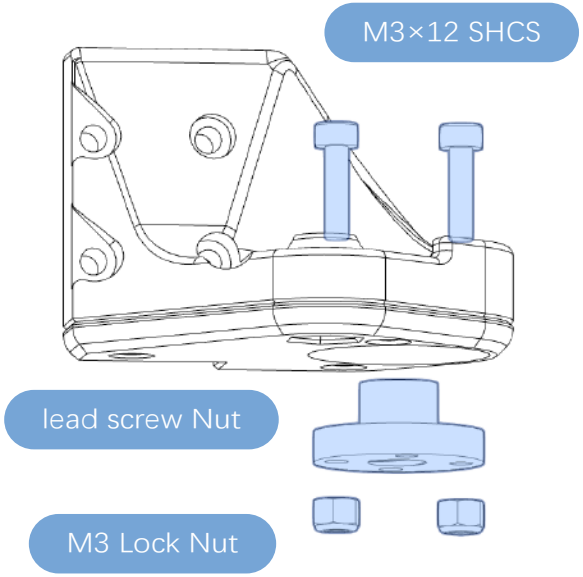
Where is the lead screw nut? It is installed on the lead screw motor and can be removed by unscrewing it from the lead screw.

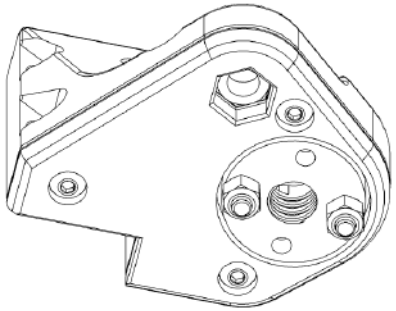


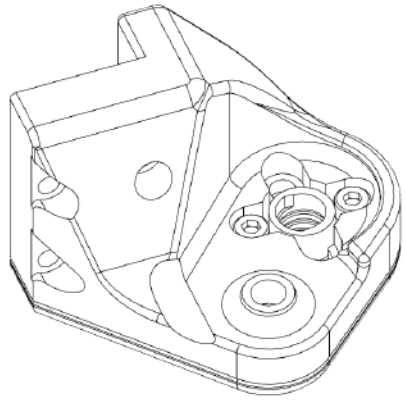


DON'T FULLY TIGHTEN

For best results do not tighten fully.







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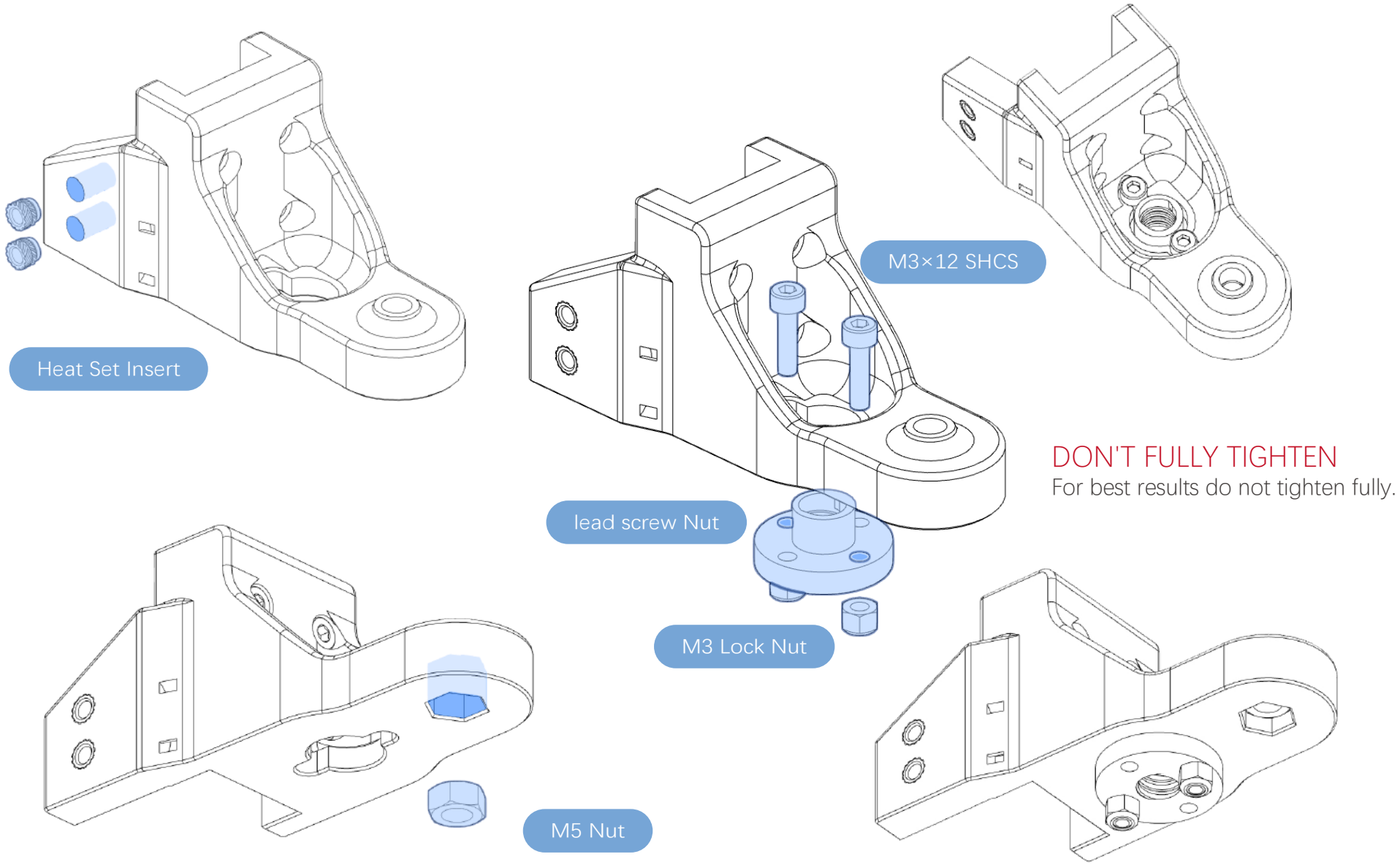

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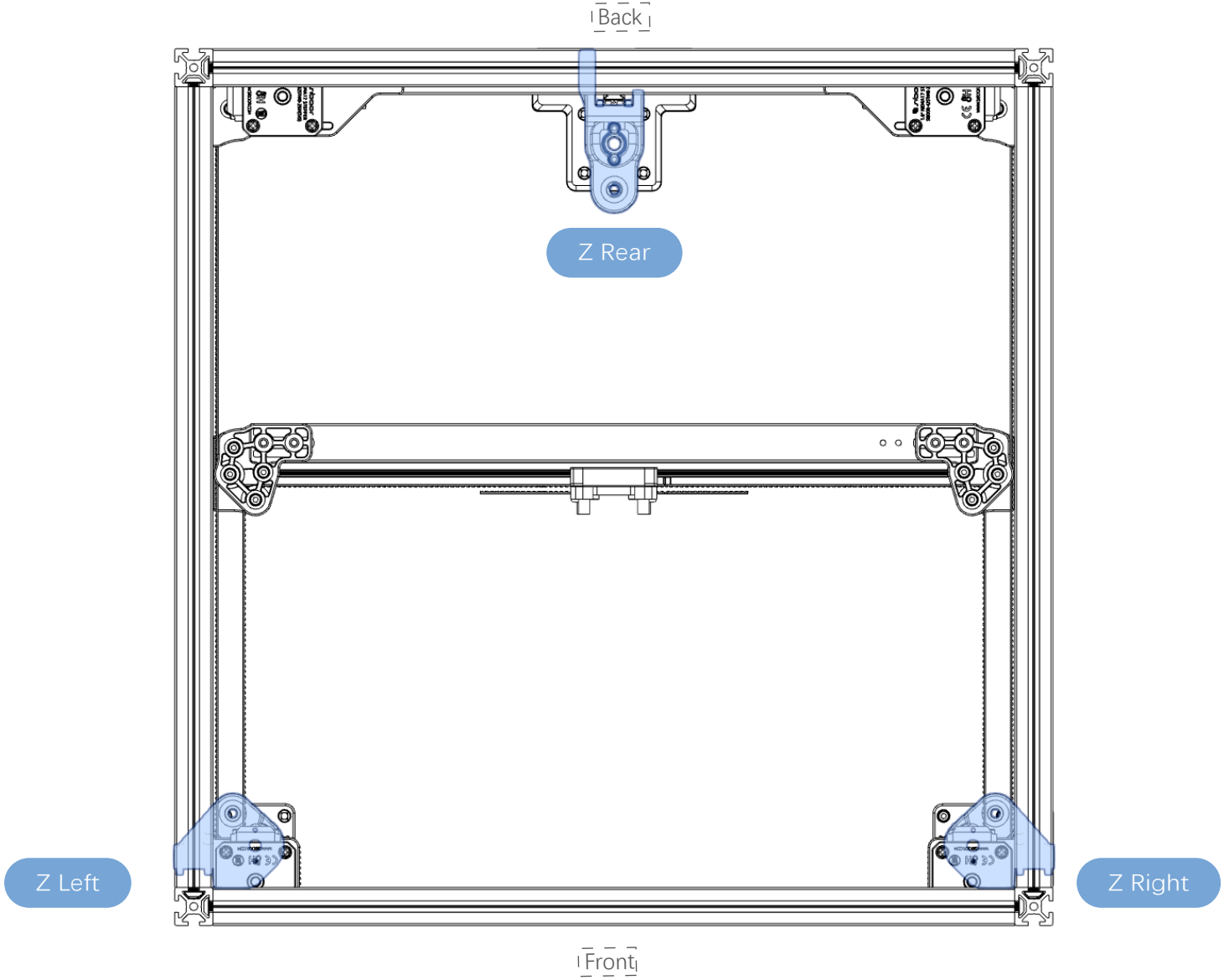
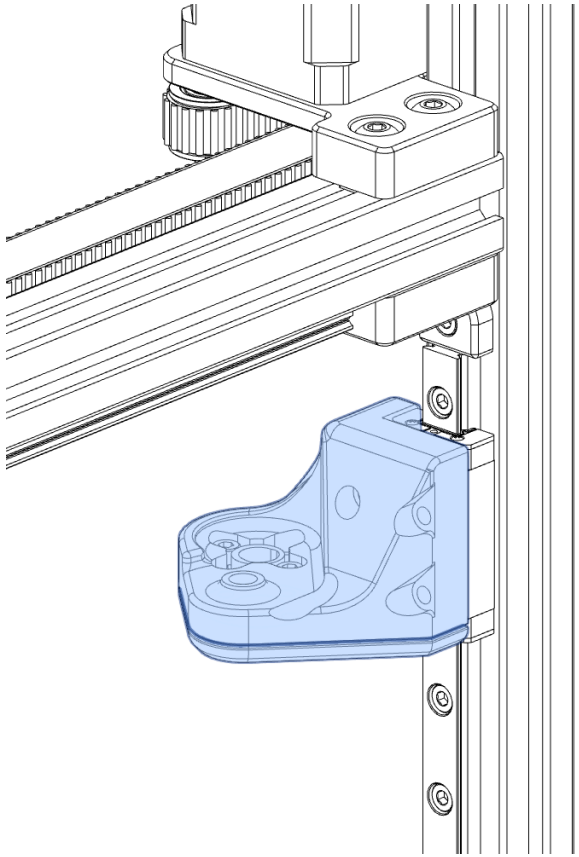
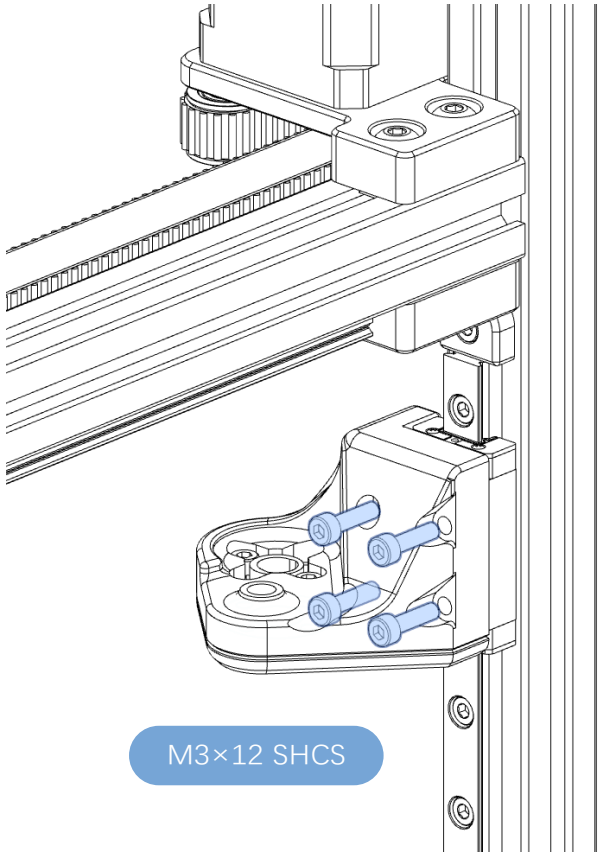
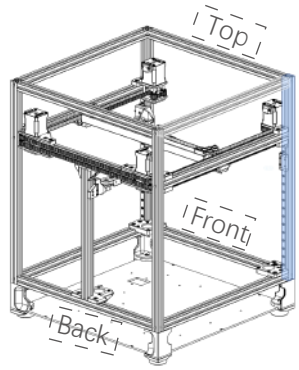
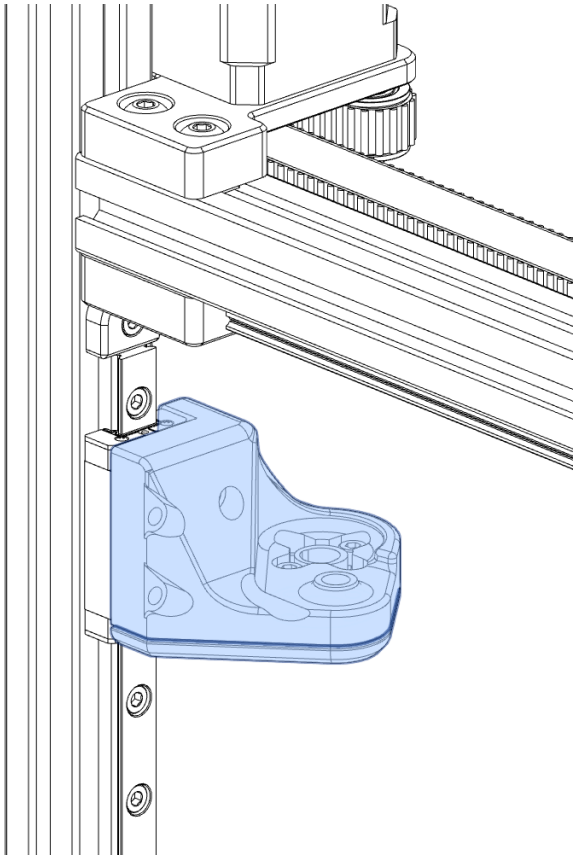
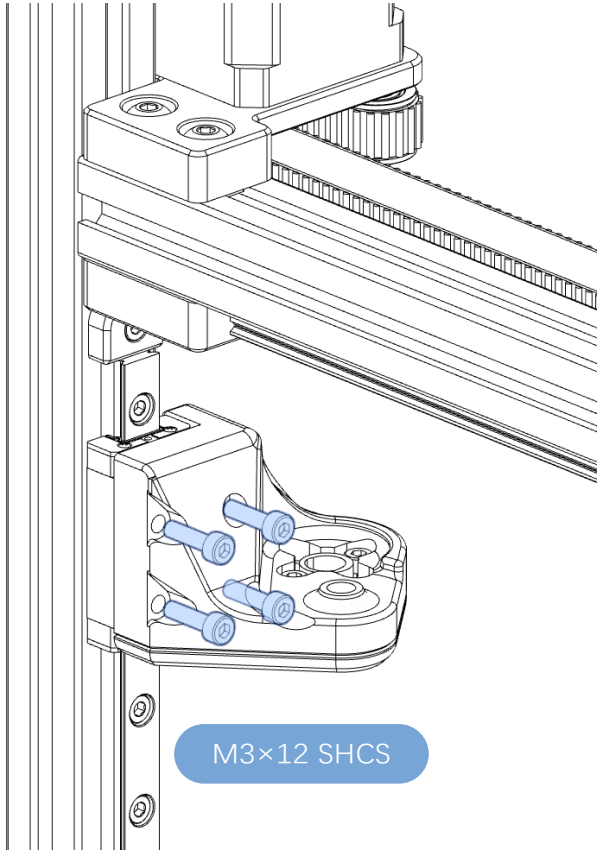

Back
Z Rear
Z Left
Z Right
Front

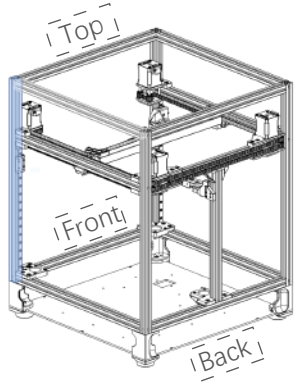


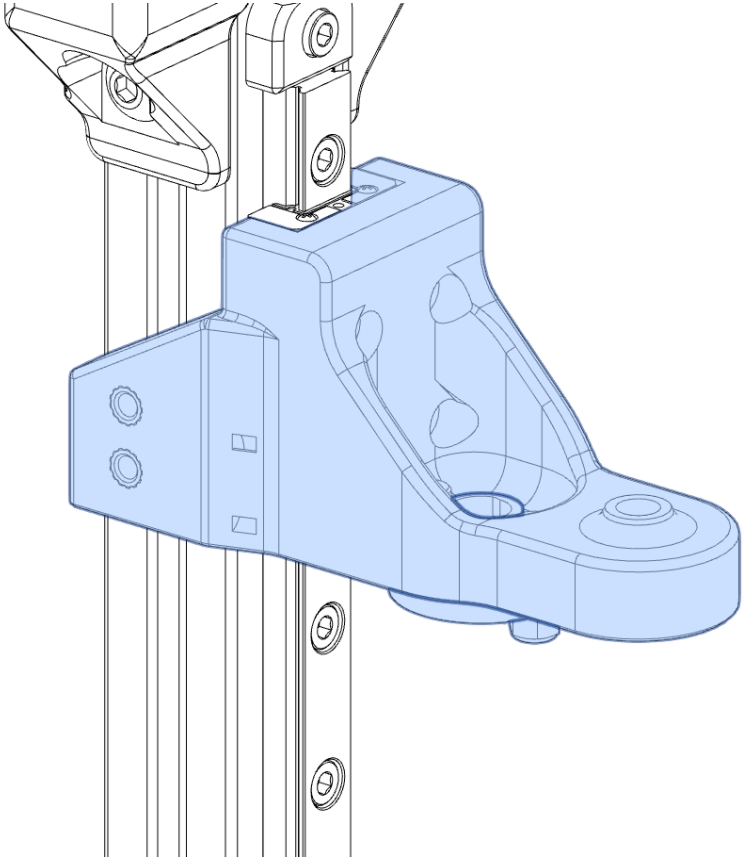

M3×12 SHCS

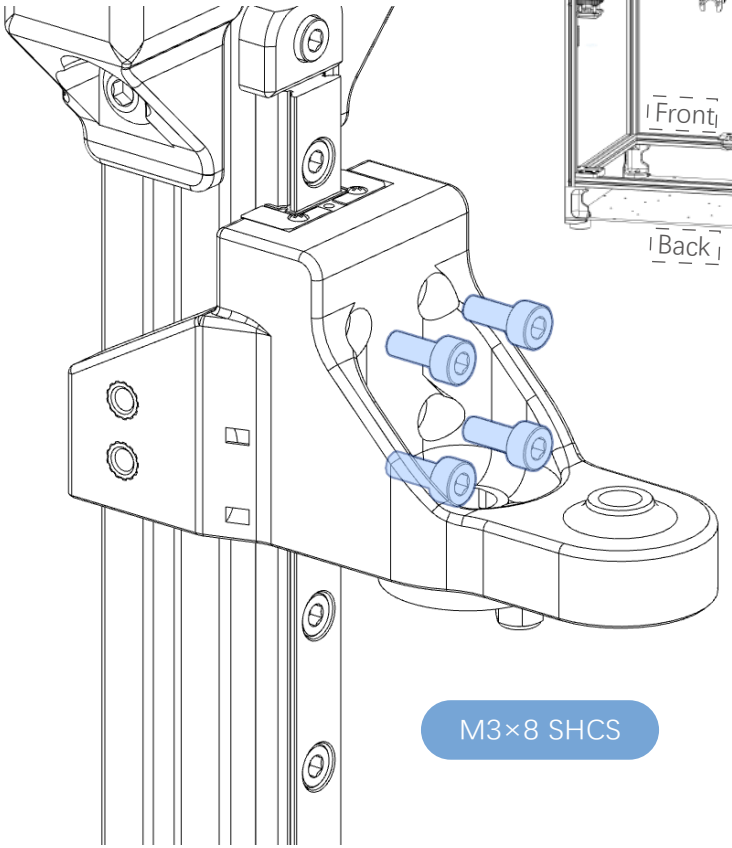

Top
Front
Back

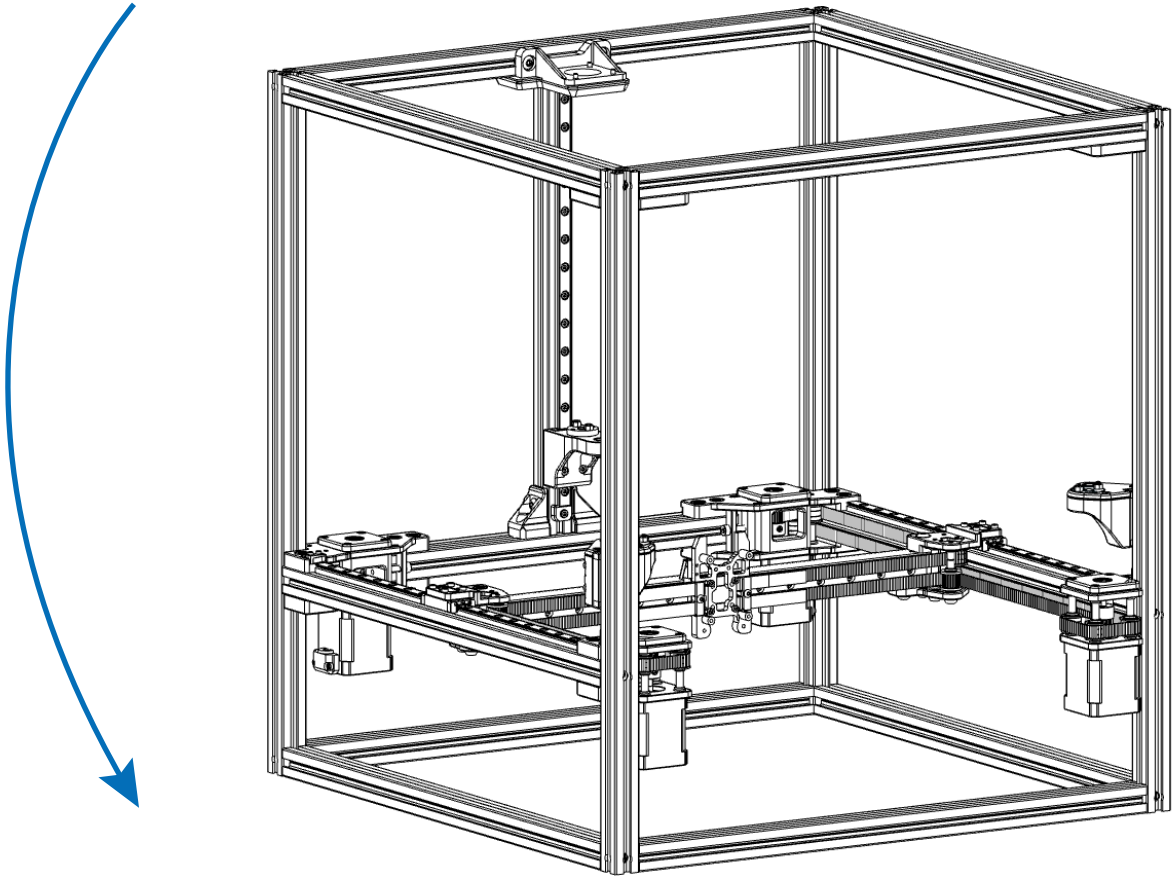



M3×12 SHCS


Top
Front
Back

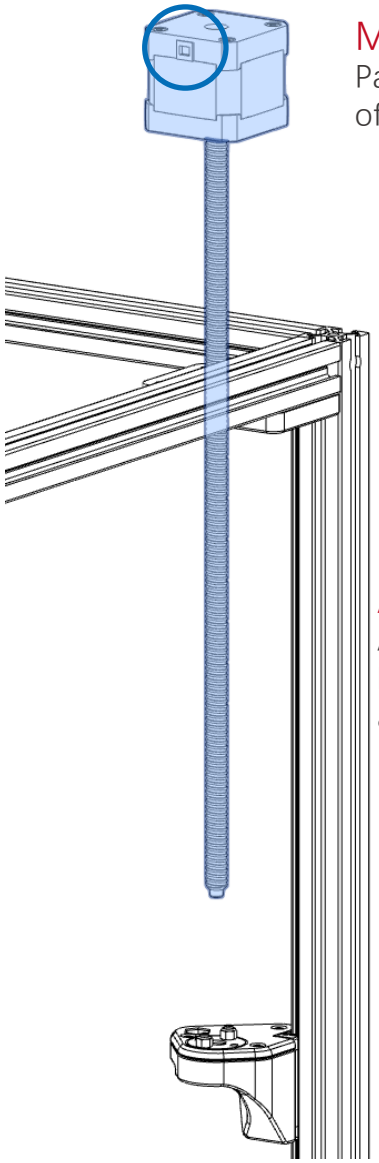



Top
Front
Back
M3×8 SHCS



FLIP UPSIDE DOWN

Turn the printer upside down for the next assembly steps.

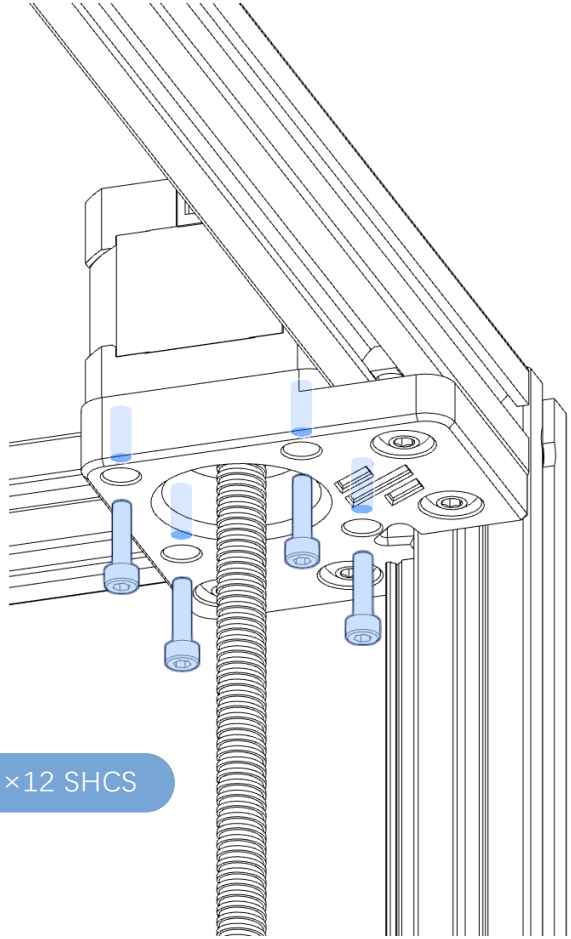


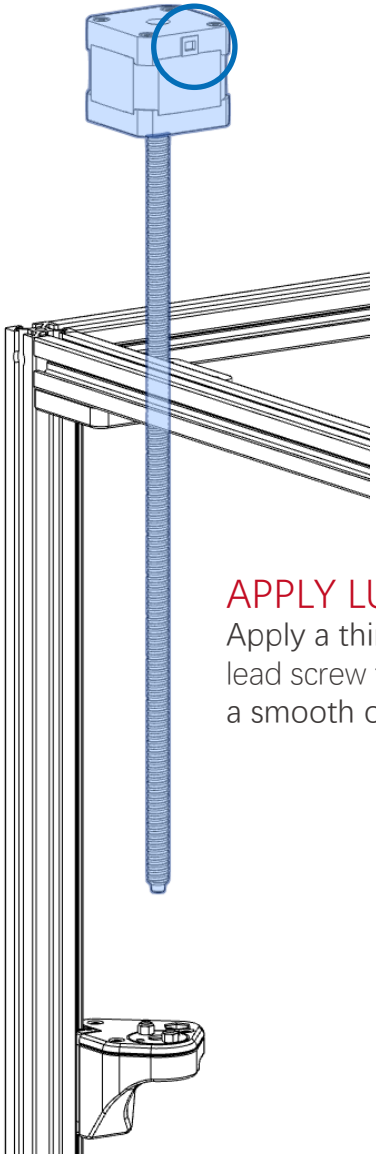
MOTOR ORIENTATION

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.



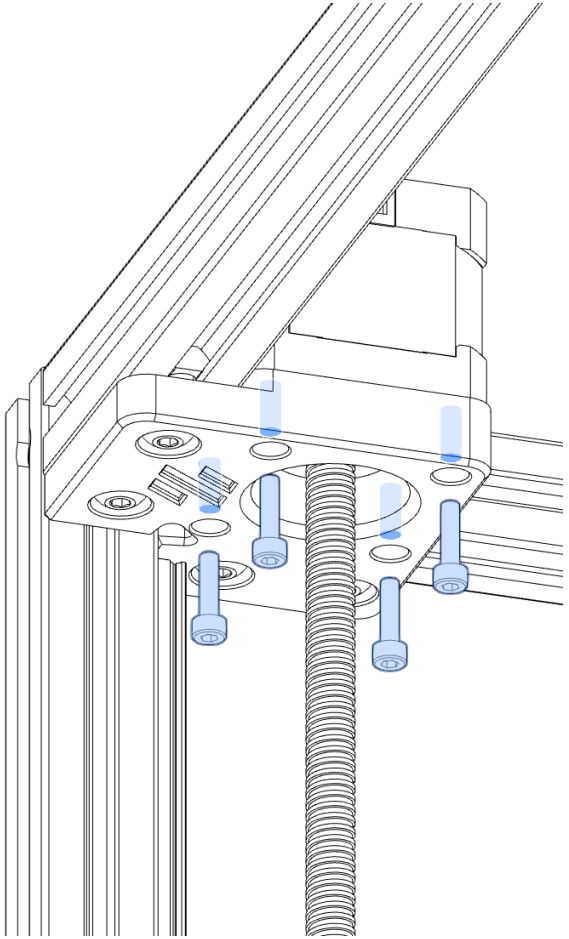


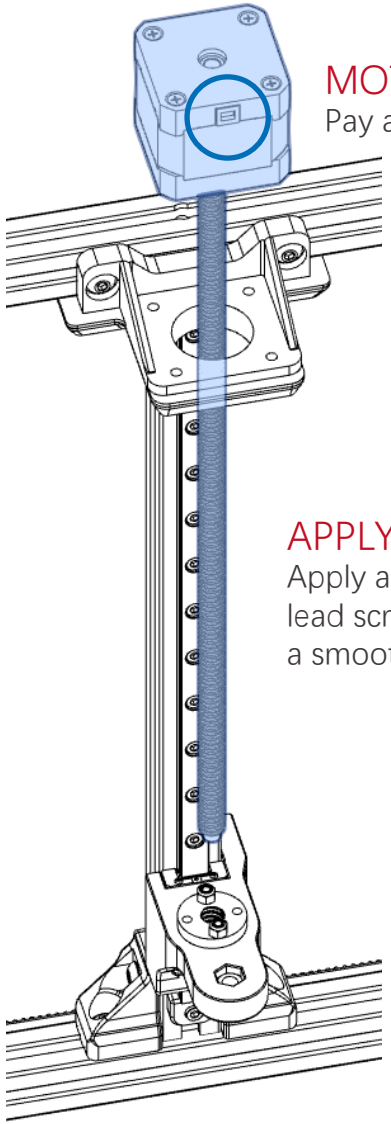
MOTOR ORIENTATION

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.



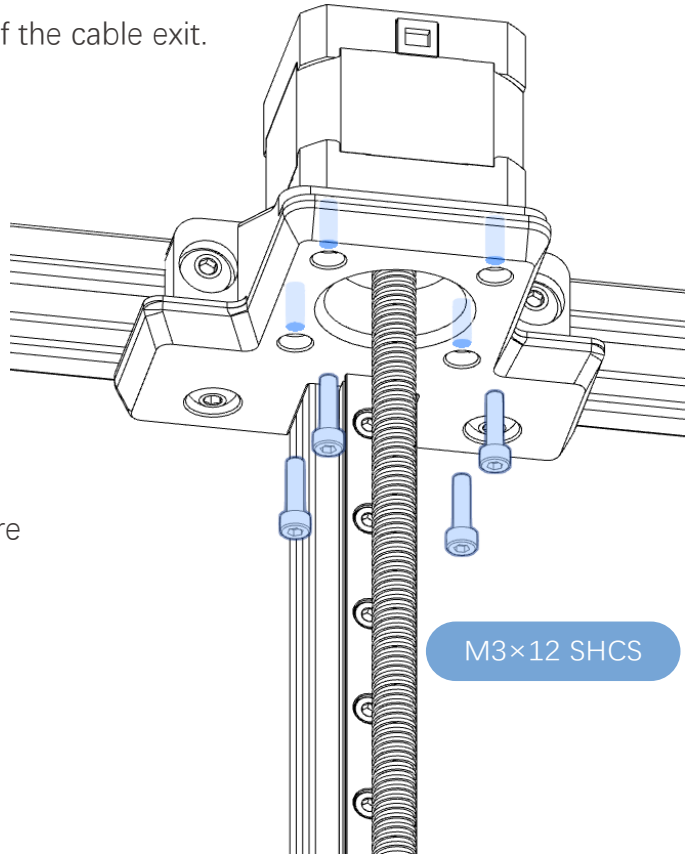


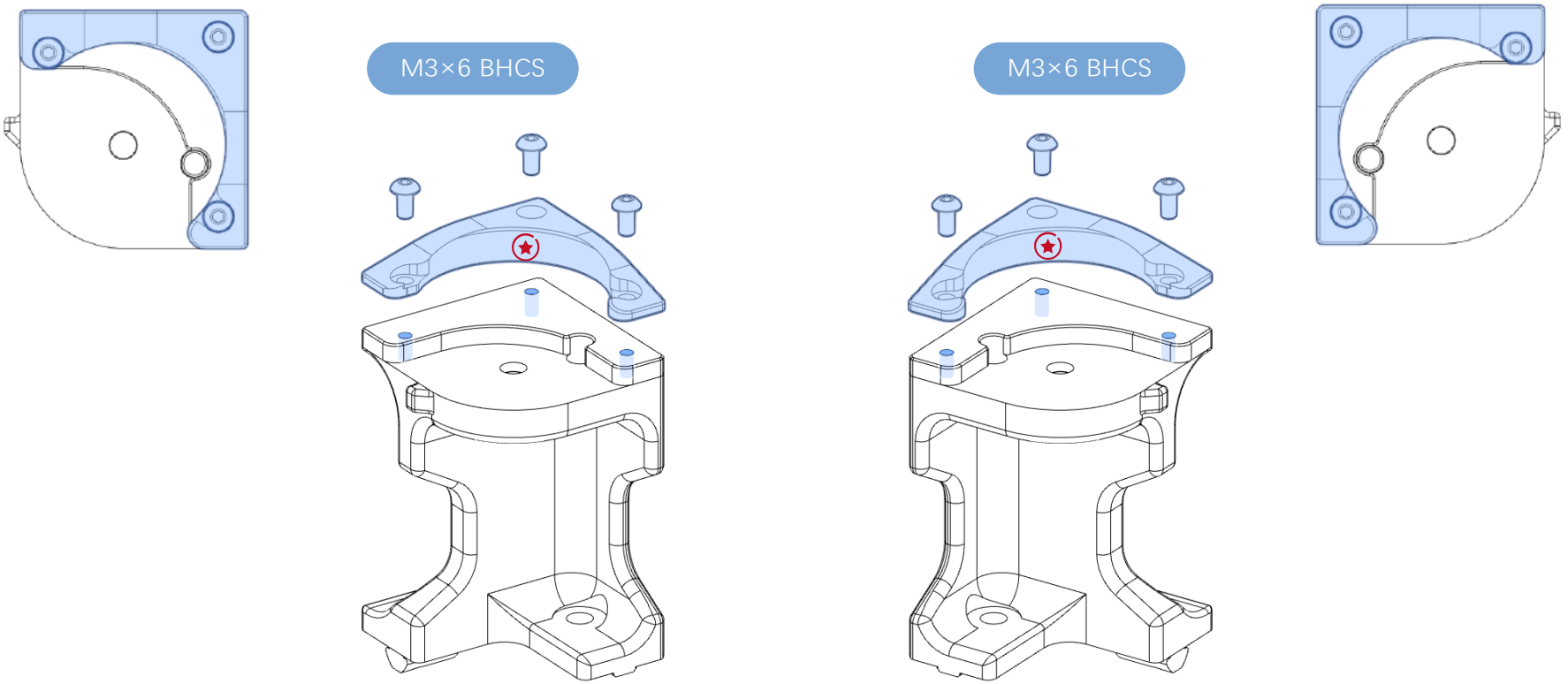
MOTOR ORIENTATION

Pay attention to the orientation of the cable exit.

APPLY LUBRICATION

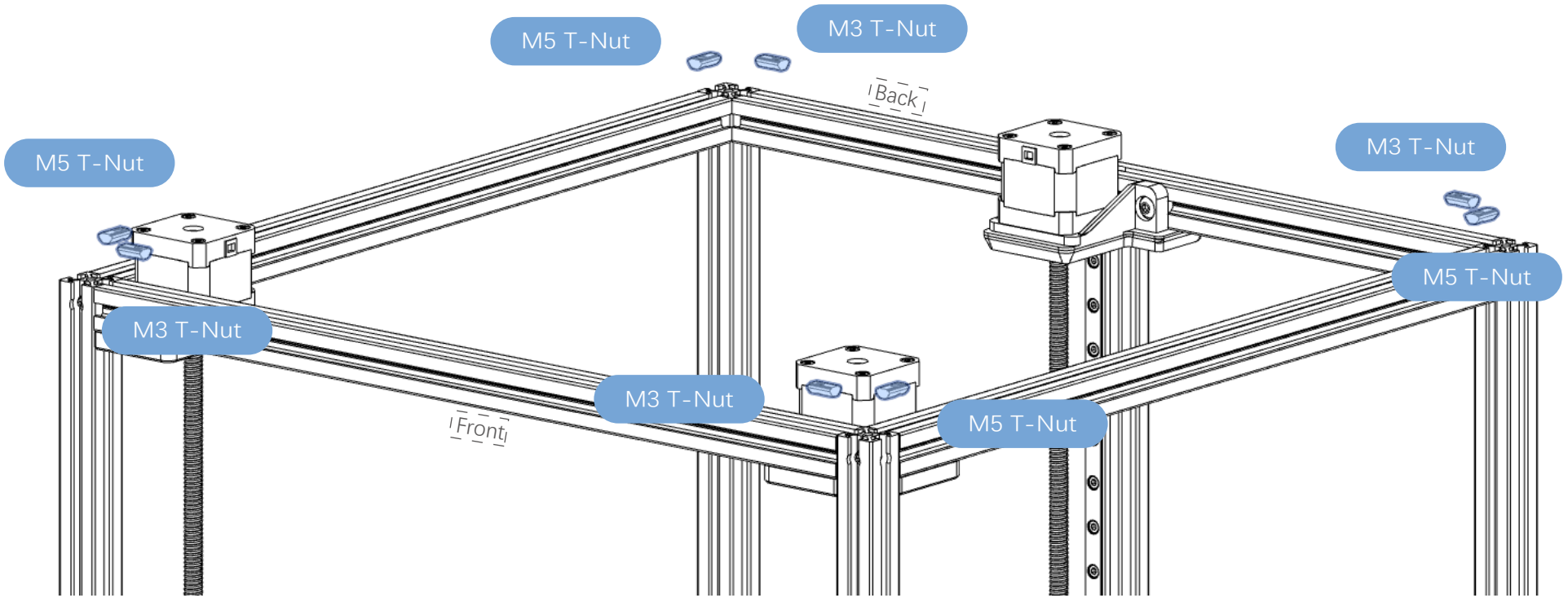
Apply a thin layer of grease to the lead screw to prevent rust and ensure a smooth operation.

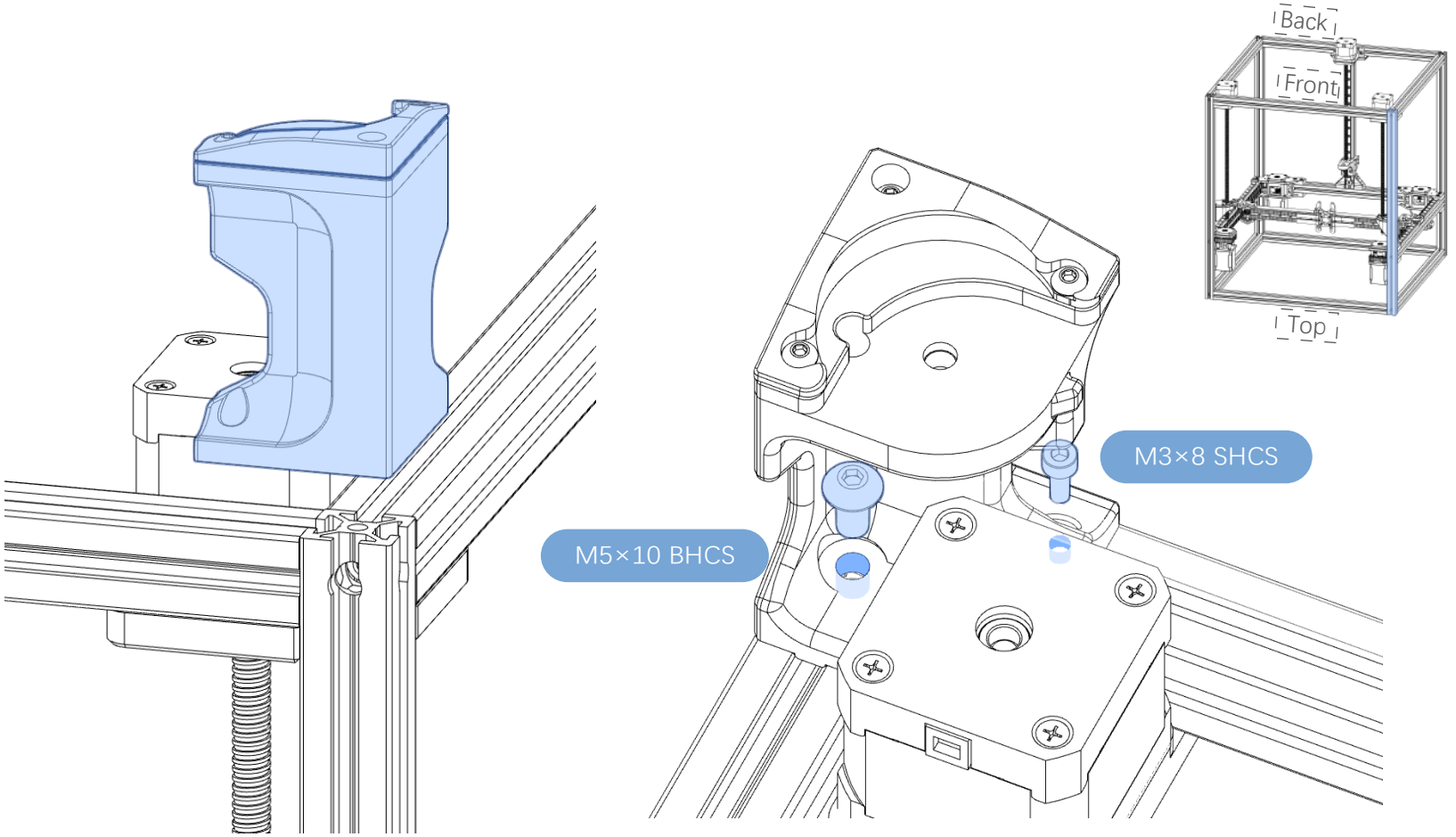


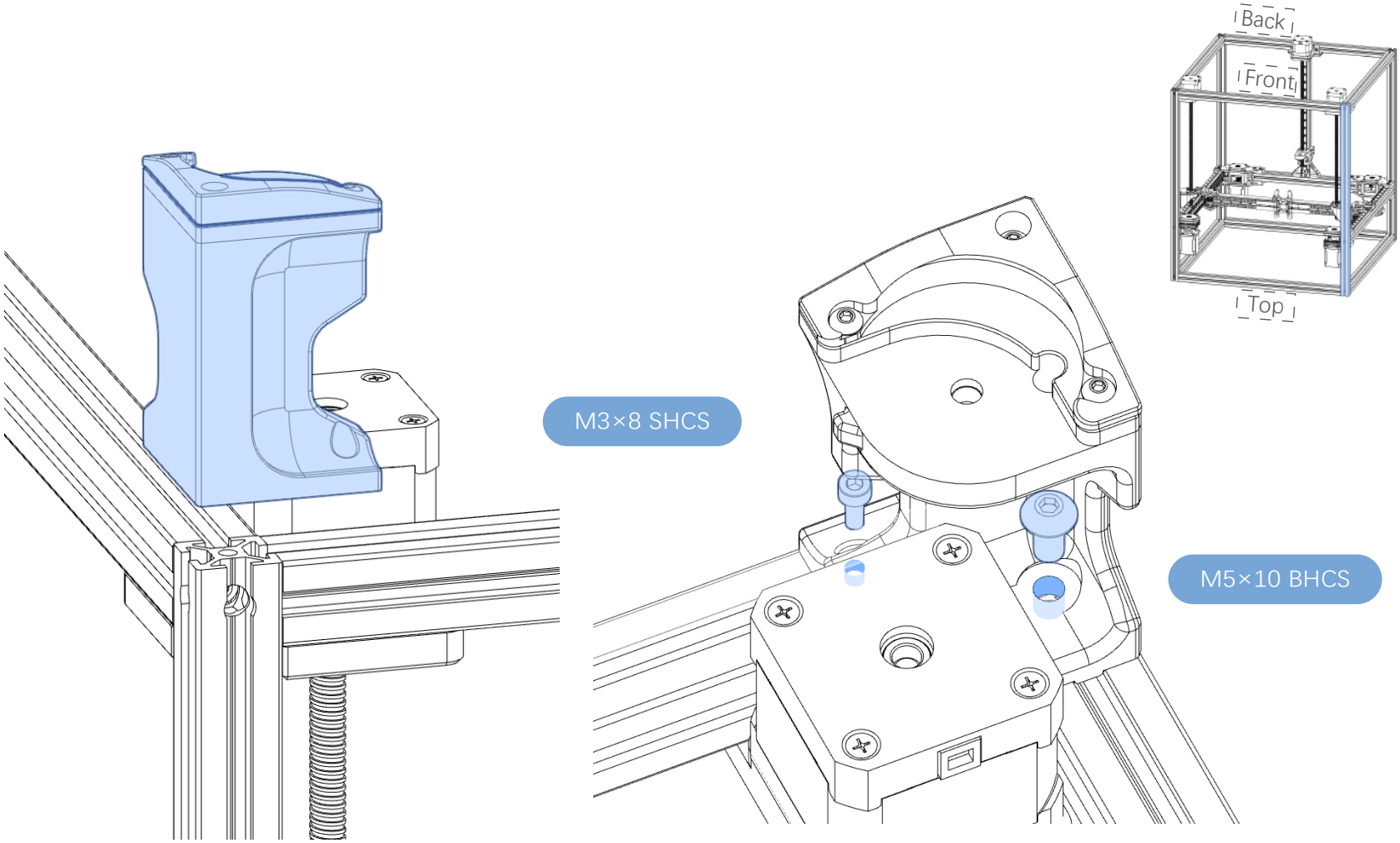


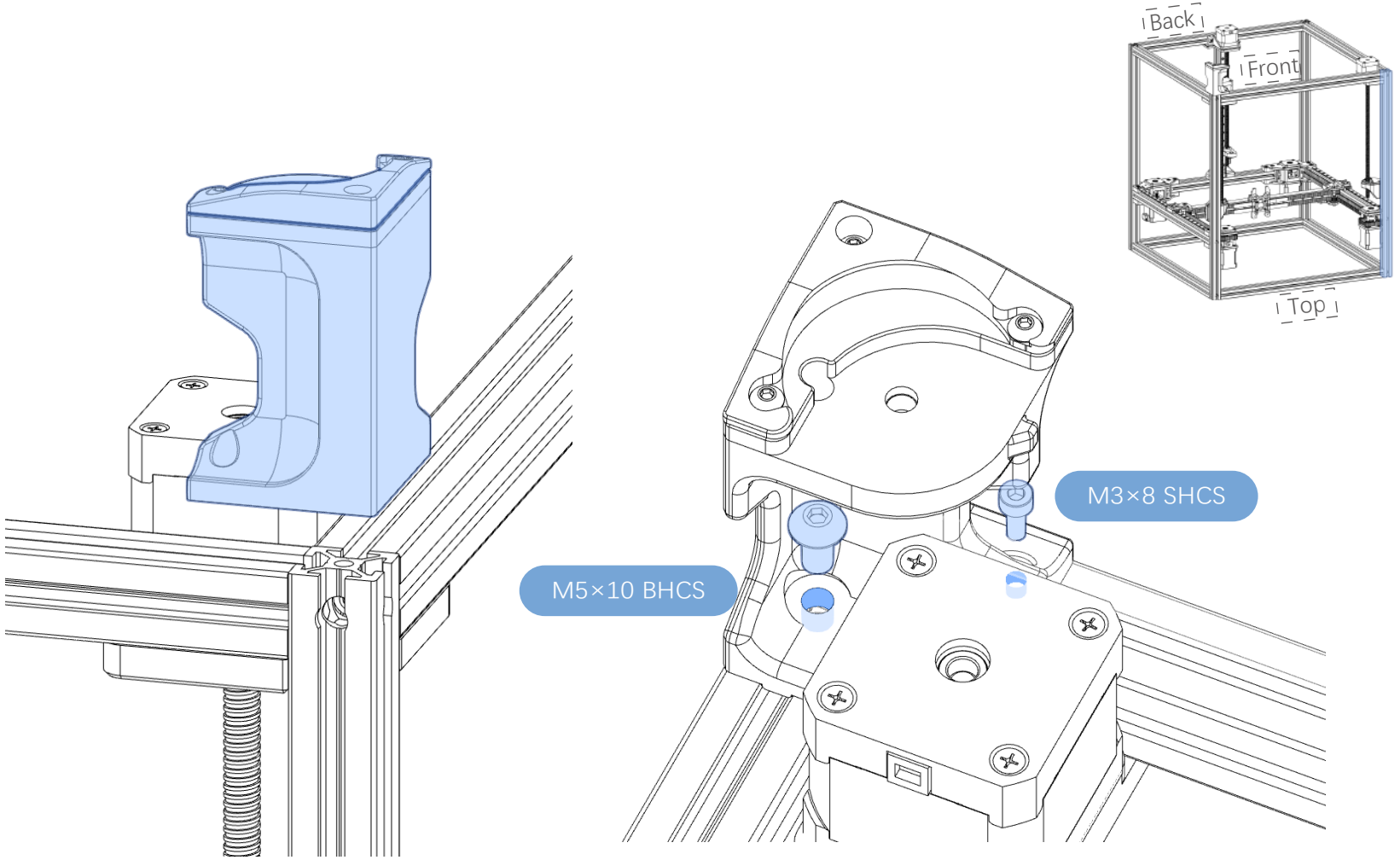
ASSEMBLE FOUR FEET

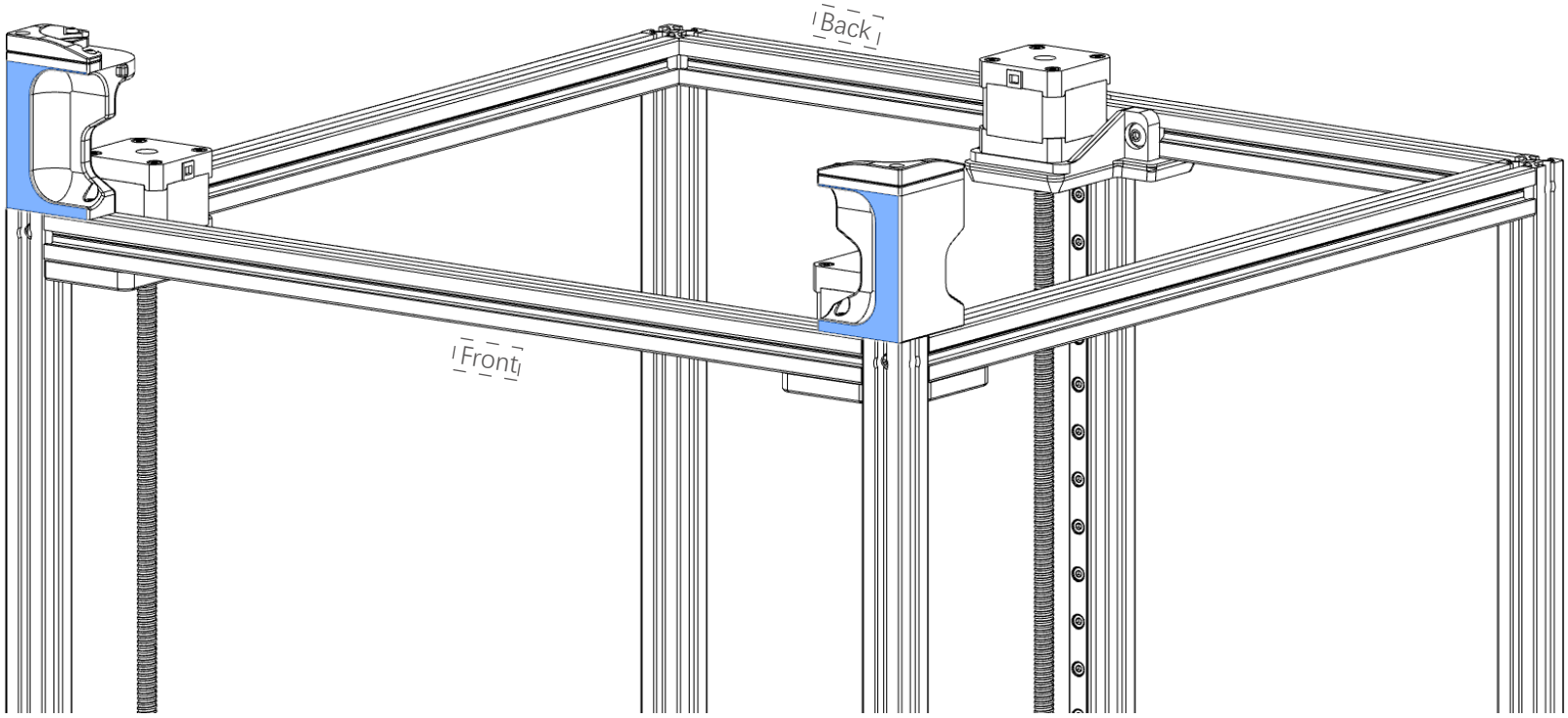
Repeat the instructions and assemble all four feet.


M5 T-Nut
M3 T-Nut
Back
M3 T-Nut
M5 T-Nut
M3 T-Nut
M3 T-Nut
Front
M5 T-Nut


Back
Front
Top
M3×8 SHCS
M5×10 BHCS

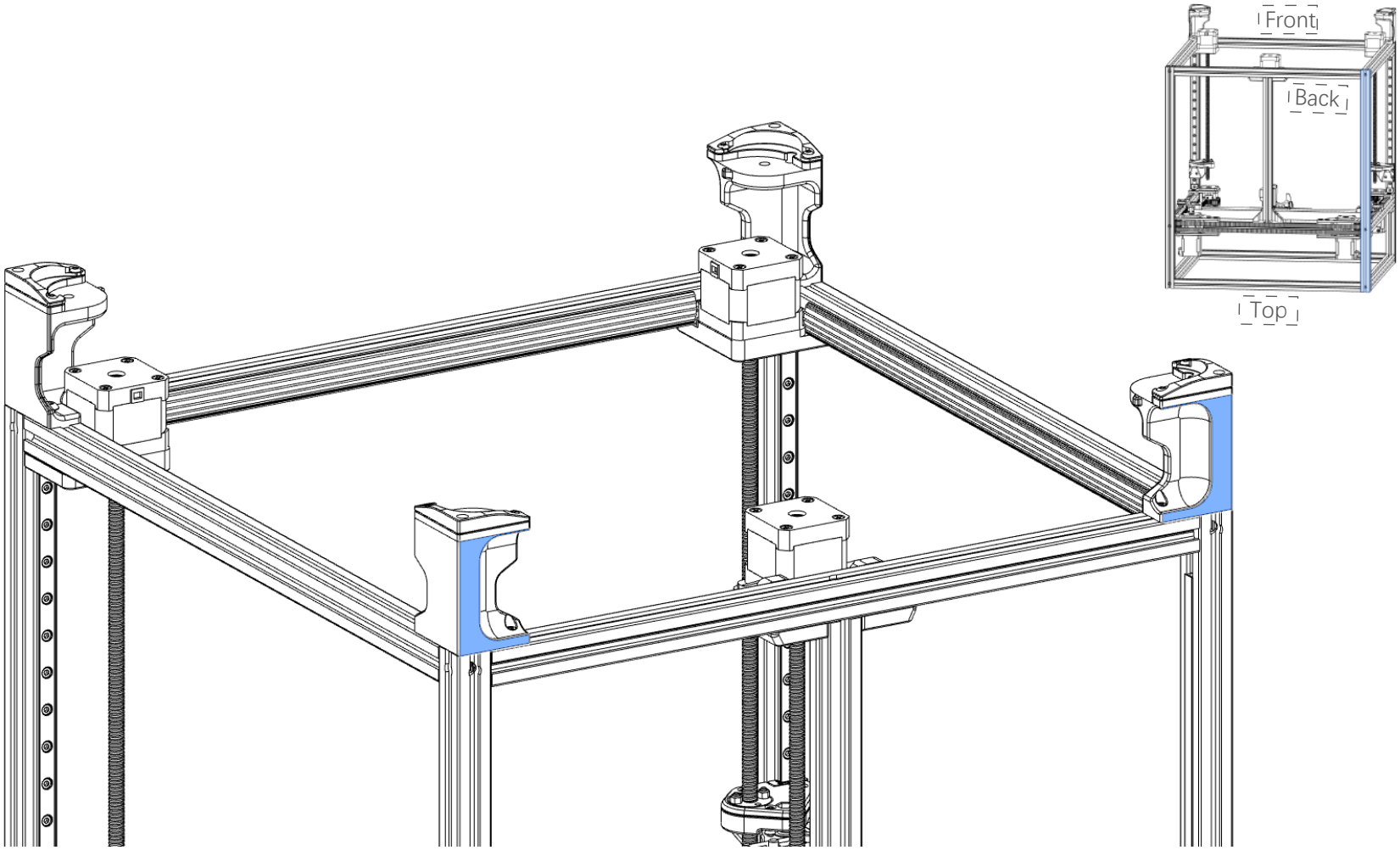

Back
Front
Top
M3×8 SHCS
M5×10 BHCS


Back
Front
Top
M3×8 SHCS
M5×10 BHCS



MIND THE PART ORIENTATION

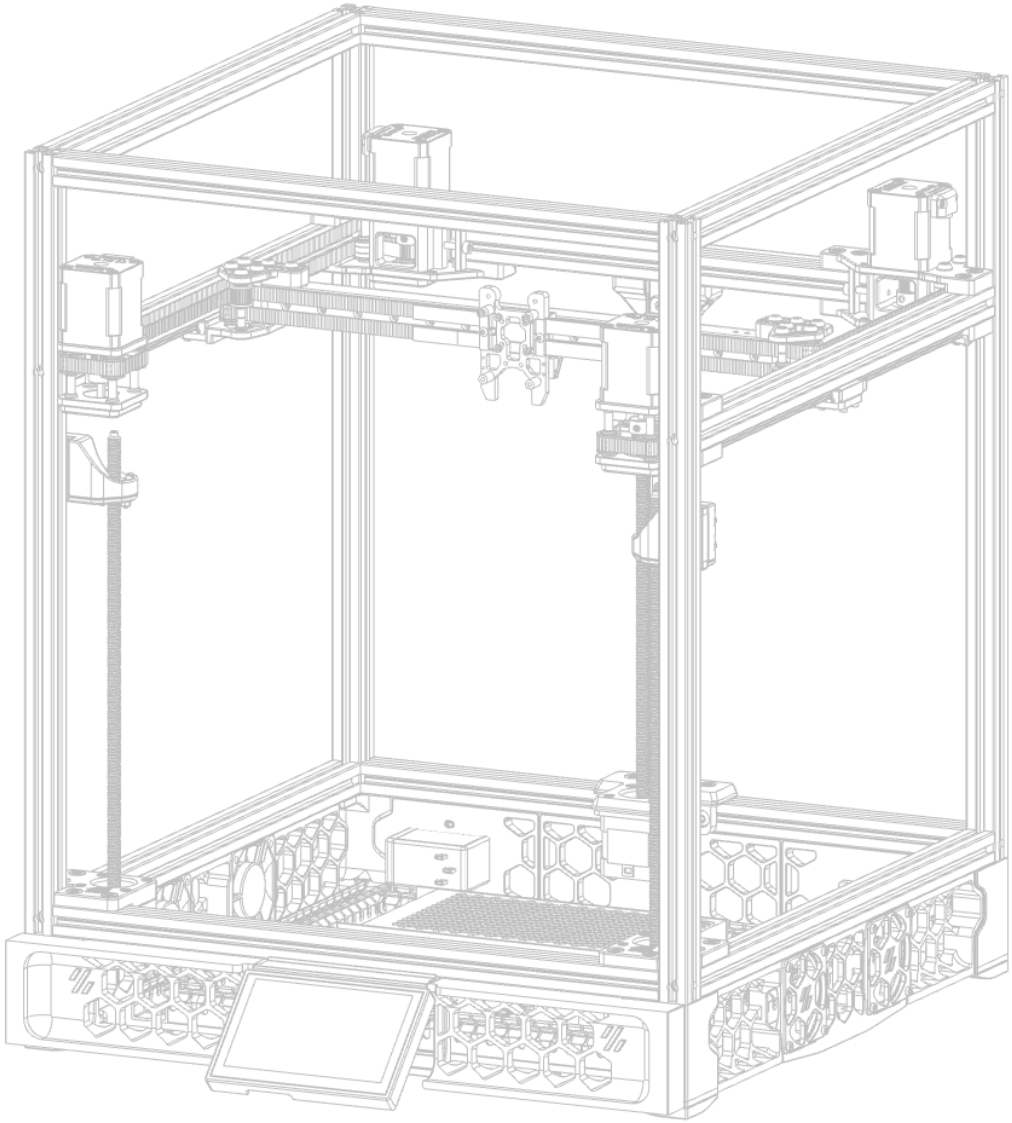
The faces highlighted above are towards the front and rear of the printer



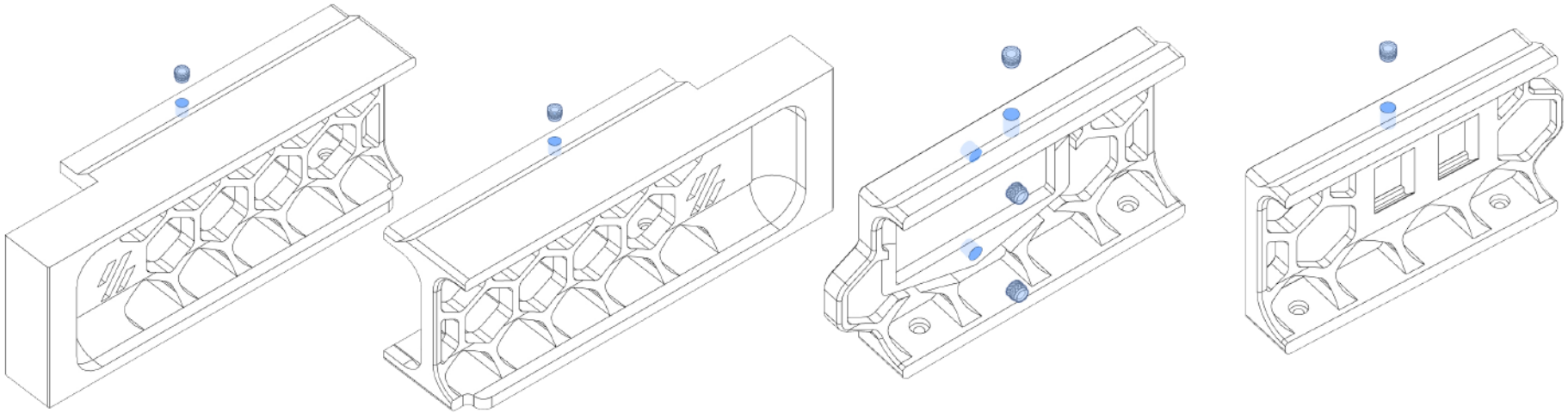
MIND THE PART ORIENTATION

The faces highlighted above are towards the front and rear of the printer

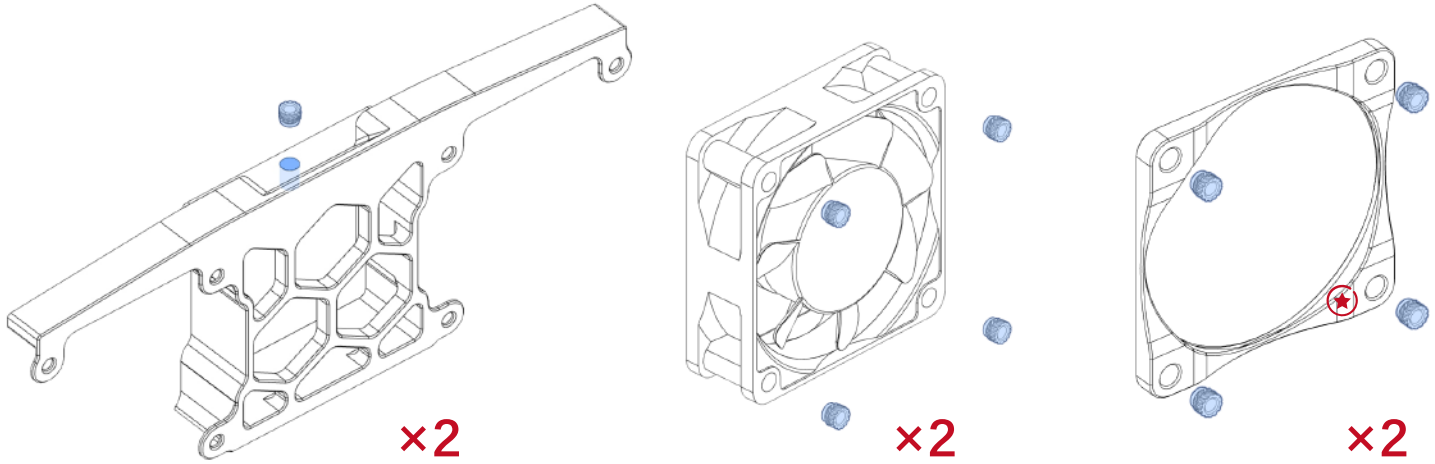
Waiting for the rendered image to fill...

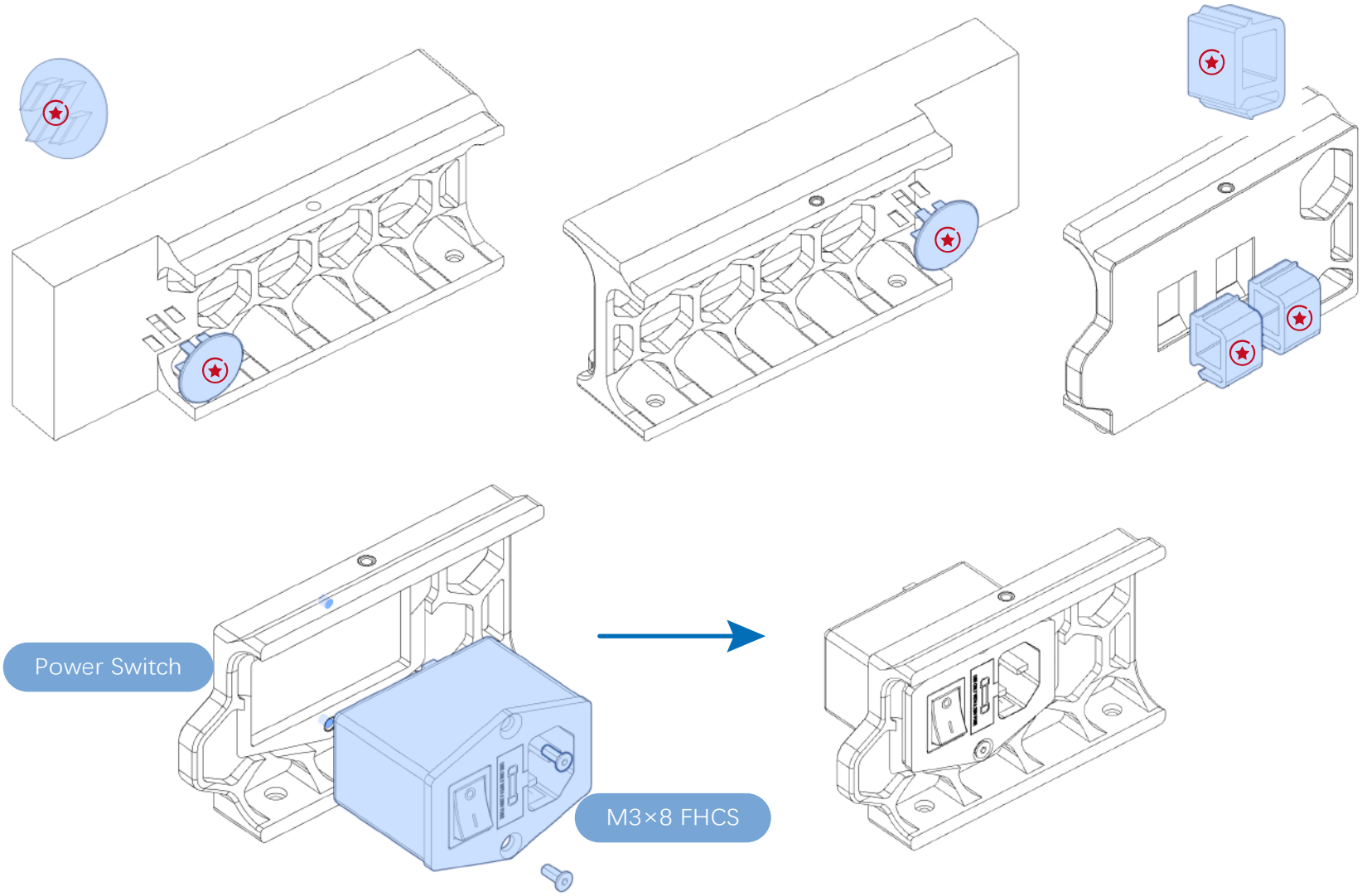


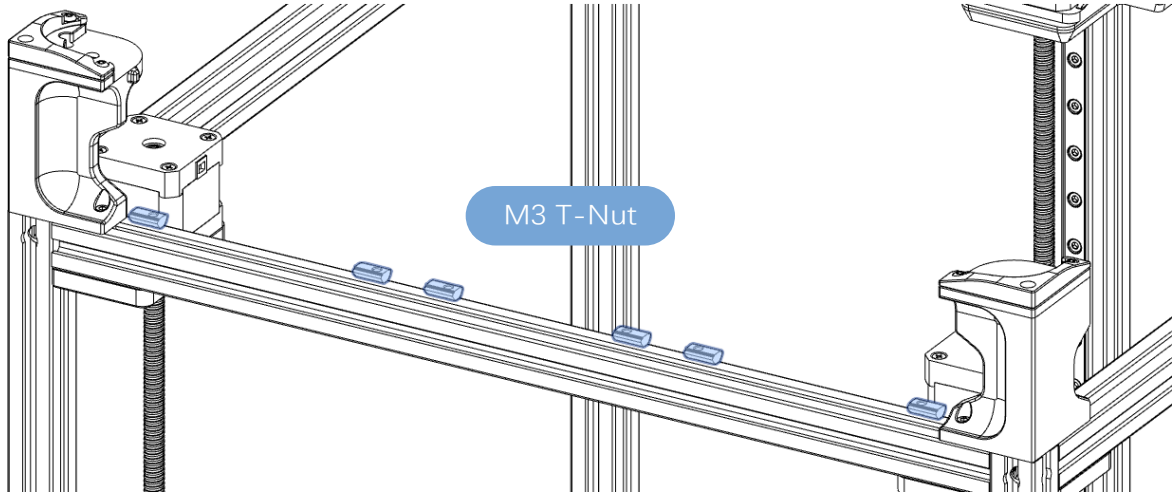
Report, Commander,
we have discovered a batch of ABS printed parts that require heat set inserts...

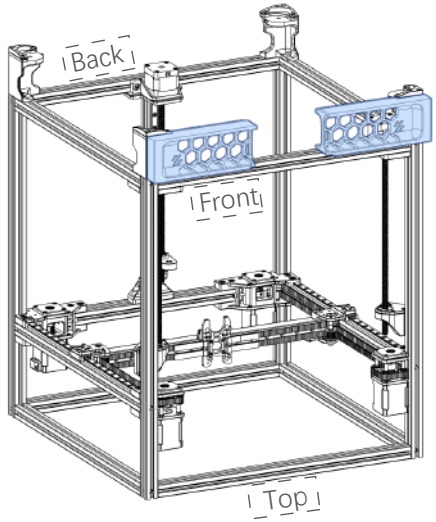


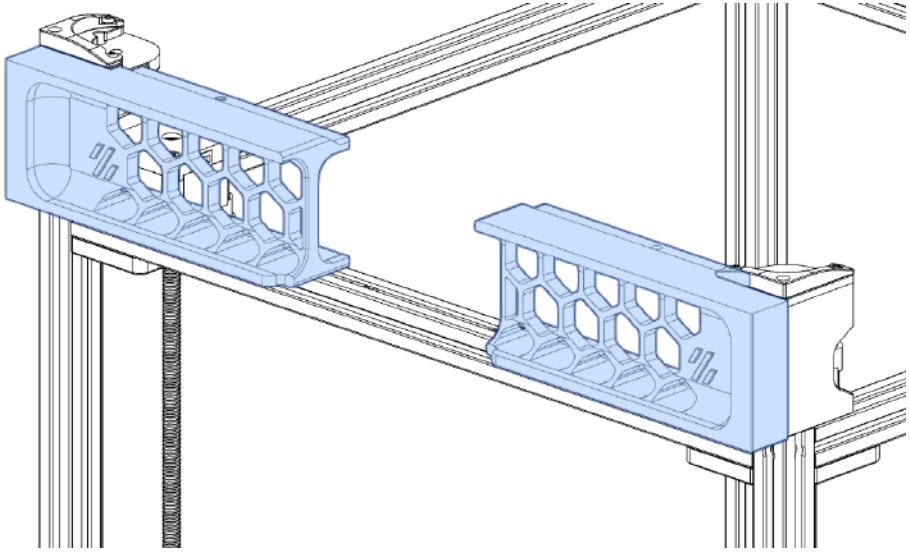
Heat Set Insert

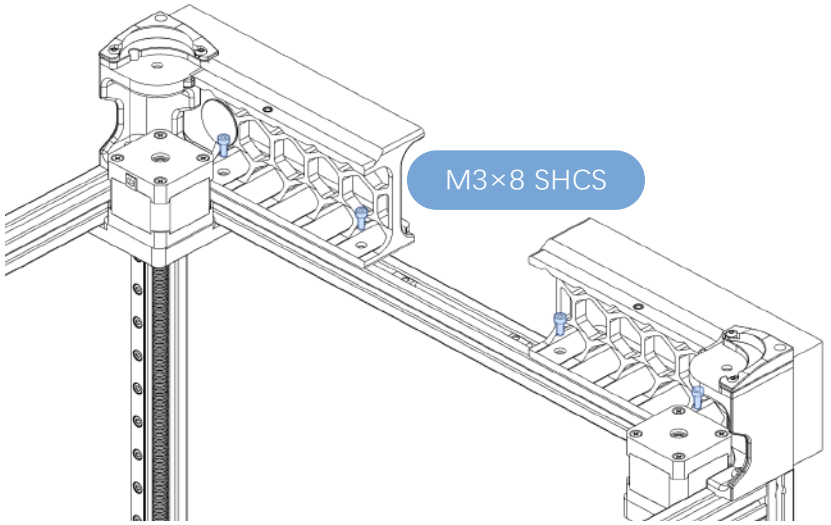


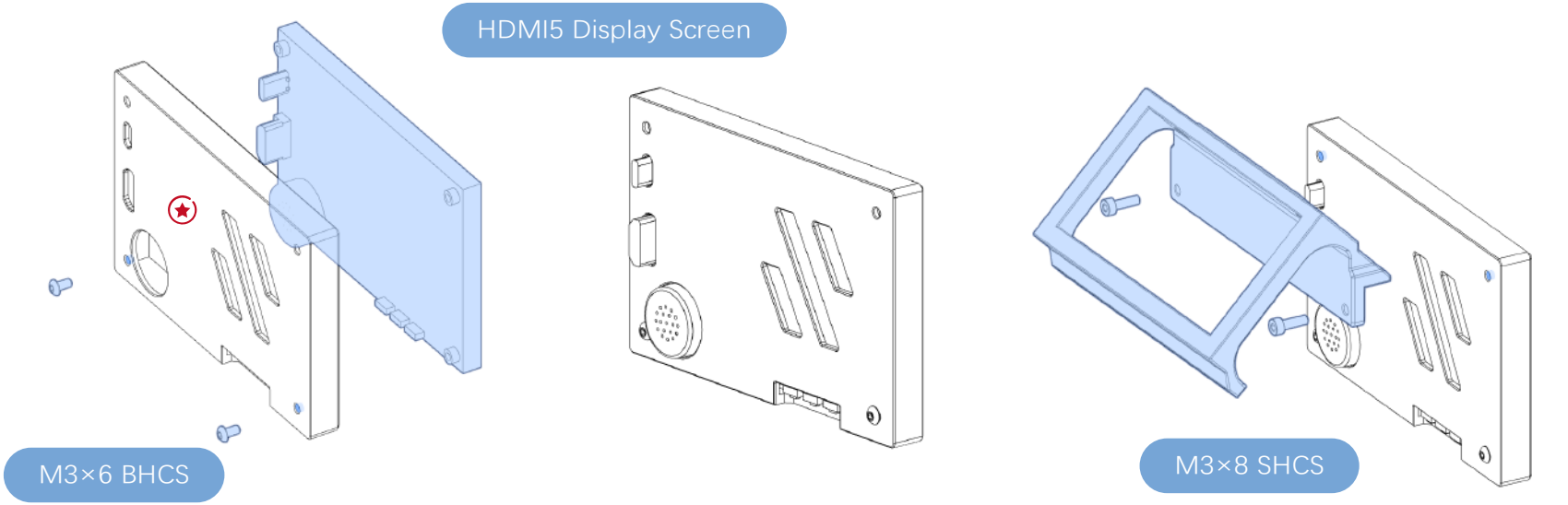

Power Switch
M3×8 FHCS

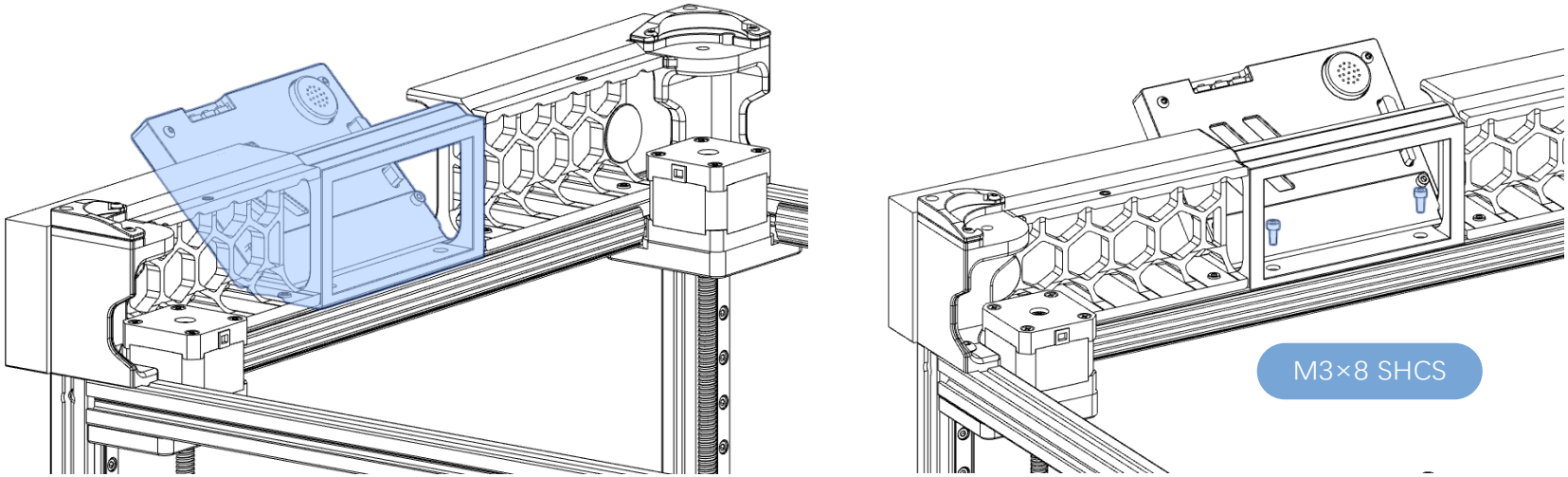

M3 T-Nut

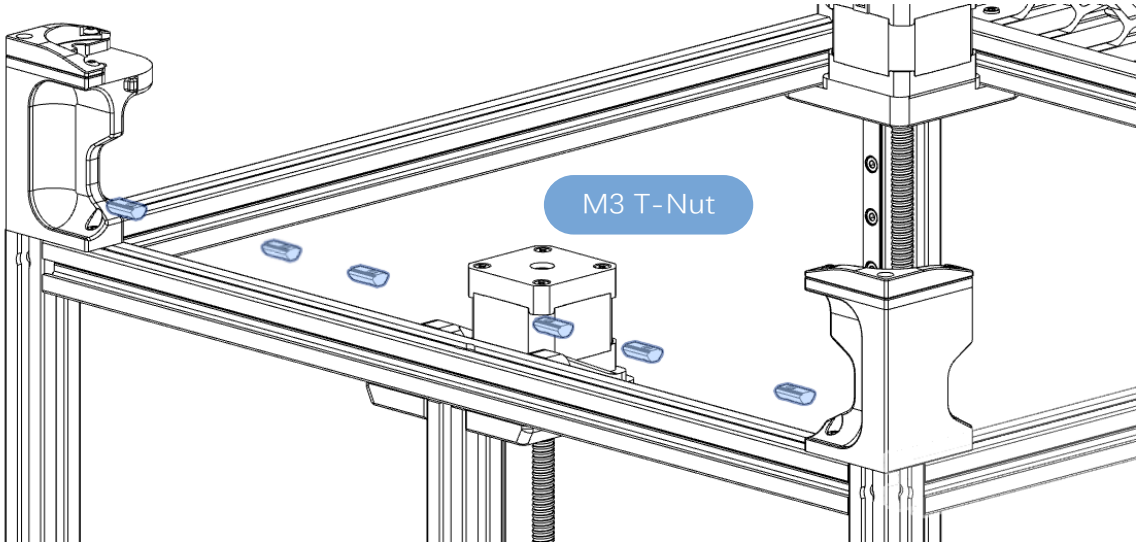

Back
Front
Top

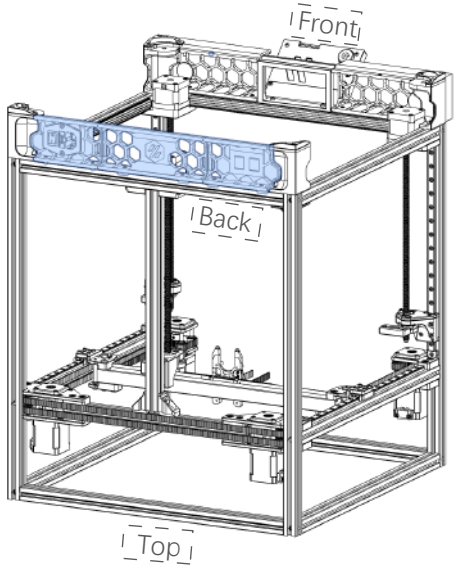


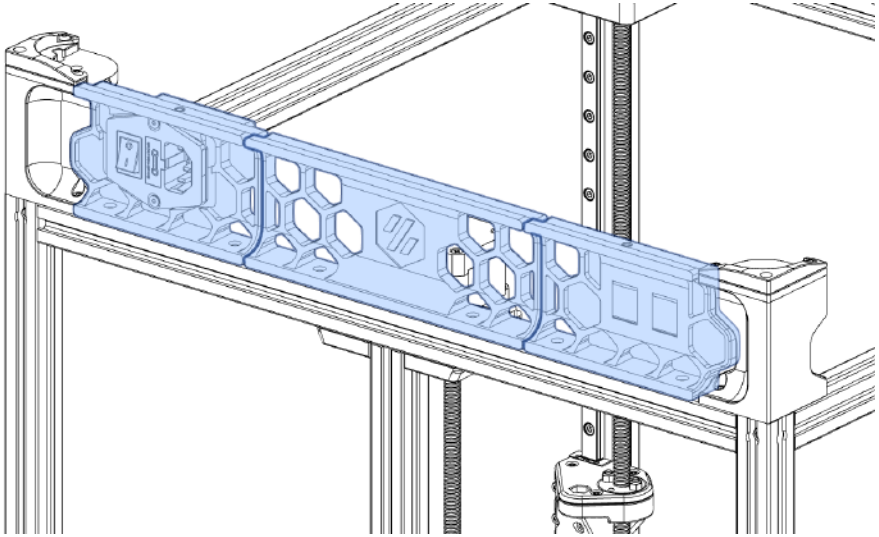

M3×8 SHCS

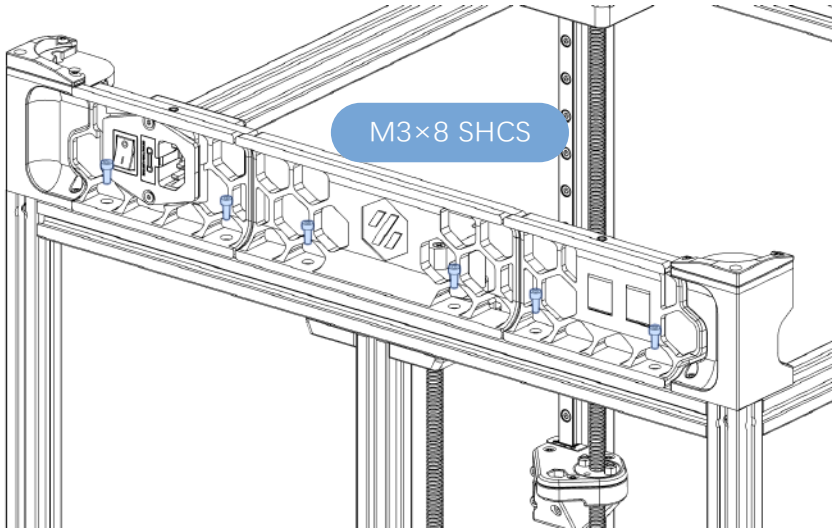

HDMI5 Display Screen
M3×6 BHCS
M3×8 SHCS

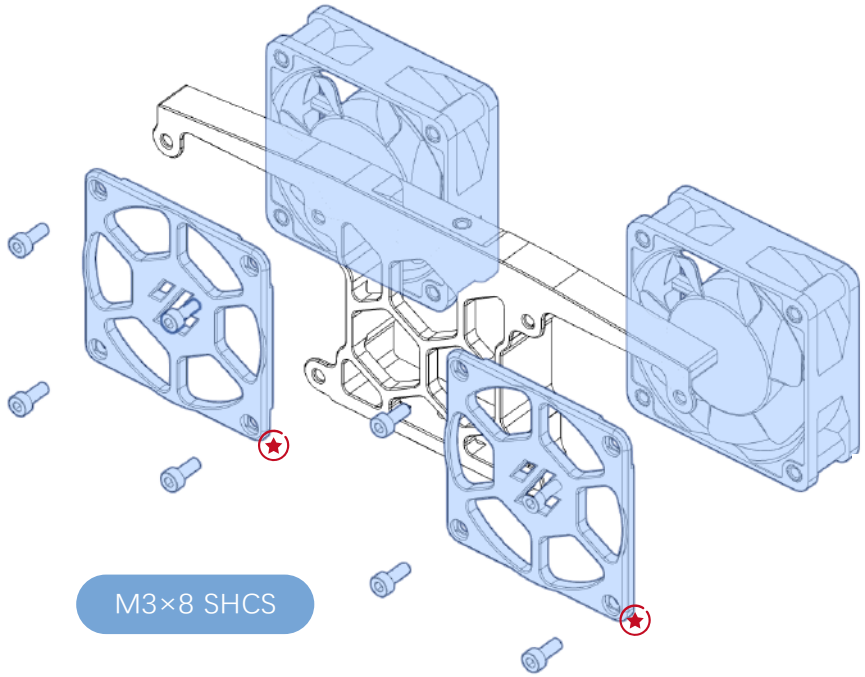

M3×8 SHCS

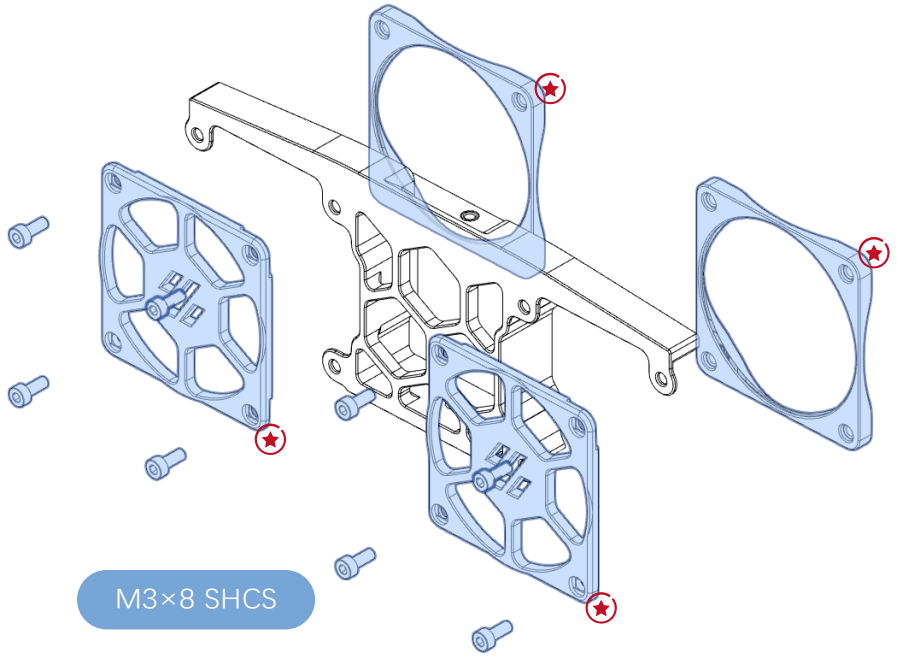

M3 T-Nut

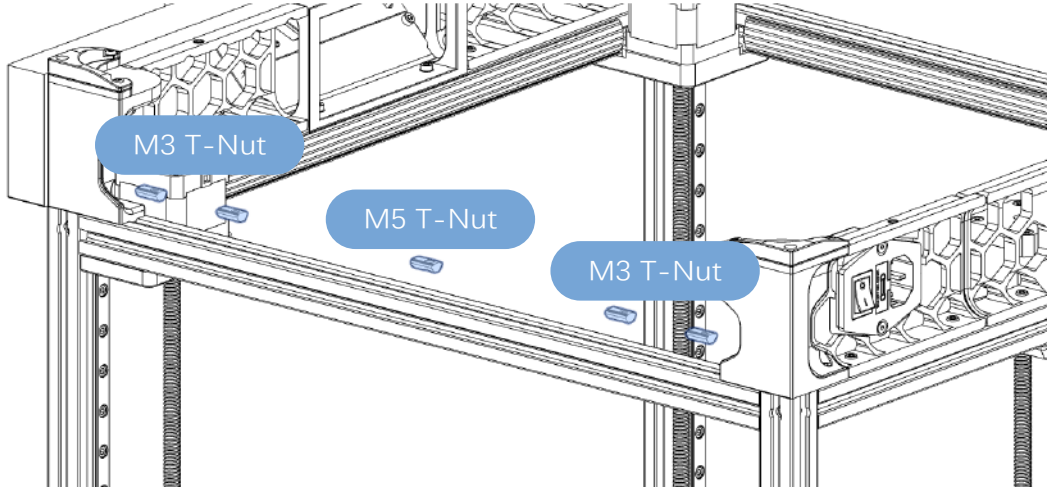

Front
Back
Top

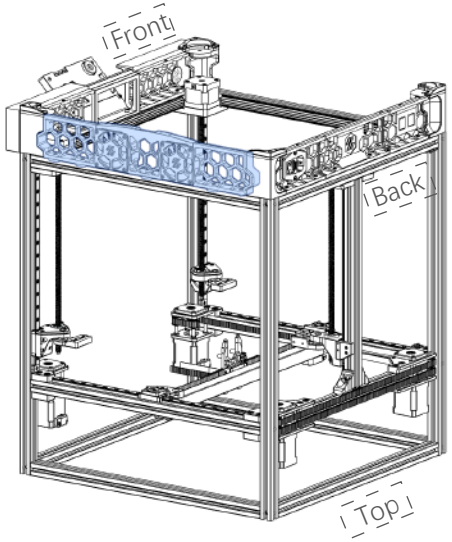


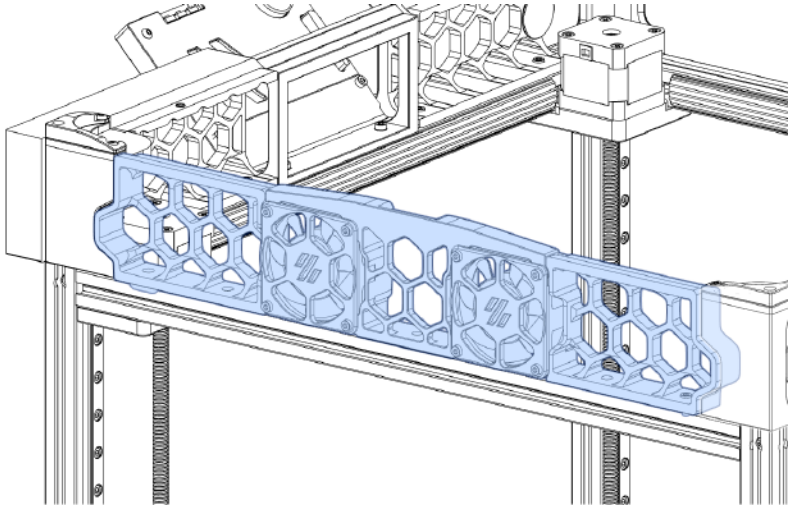

M3×8 SHCS

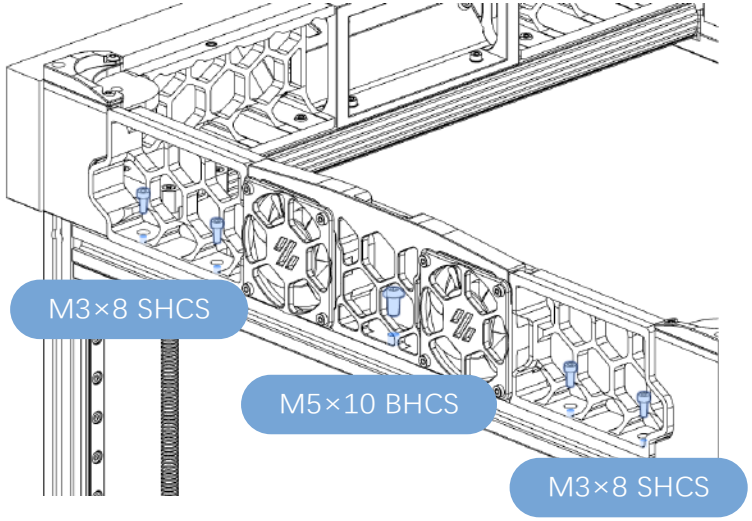

M3×8 SHCS

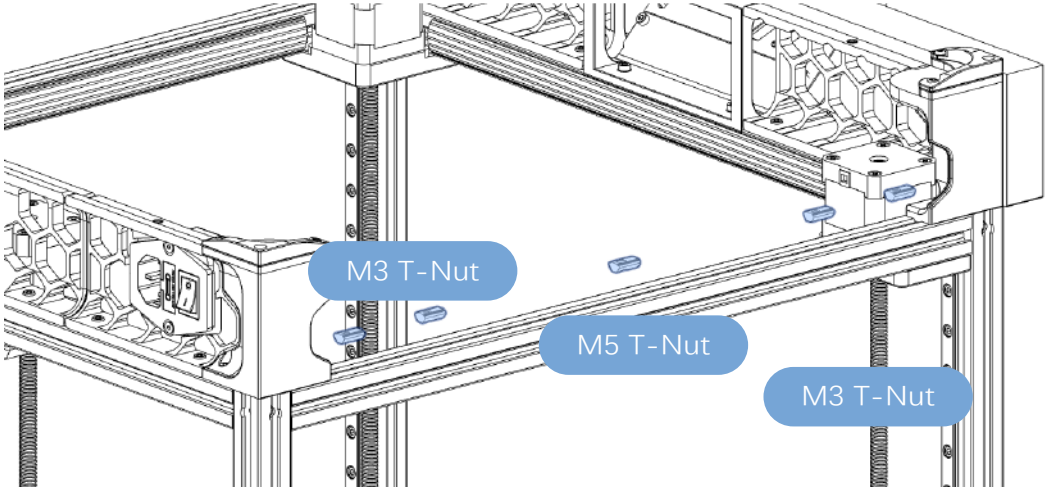

M3×8 SHCS

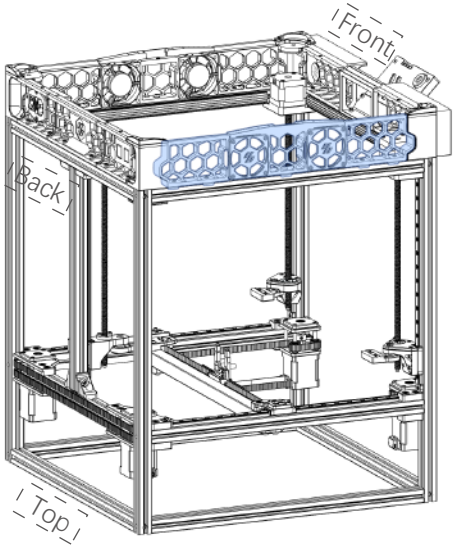

M3 T-Nut
M5 T-Nut
M3 T-Nut

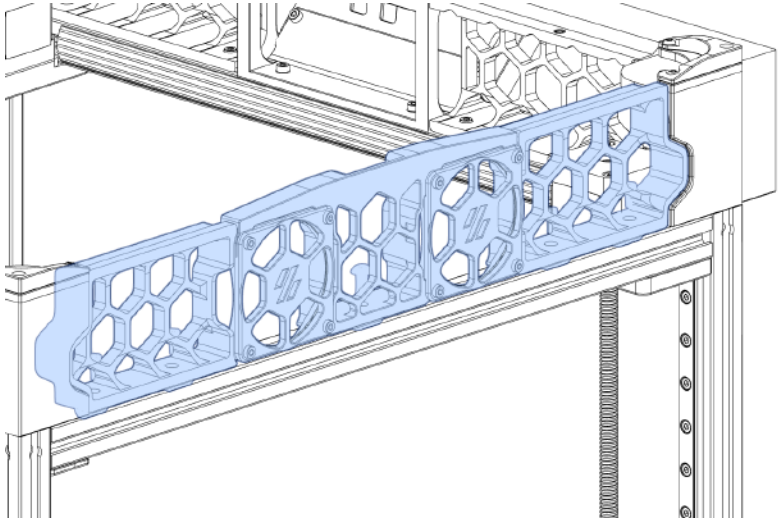

Front
Back
Top

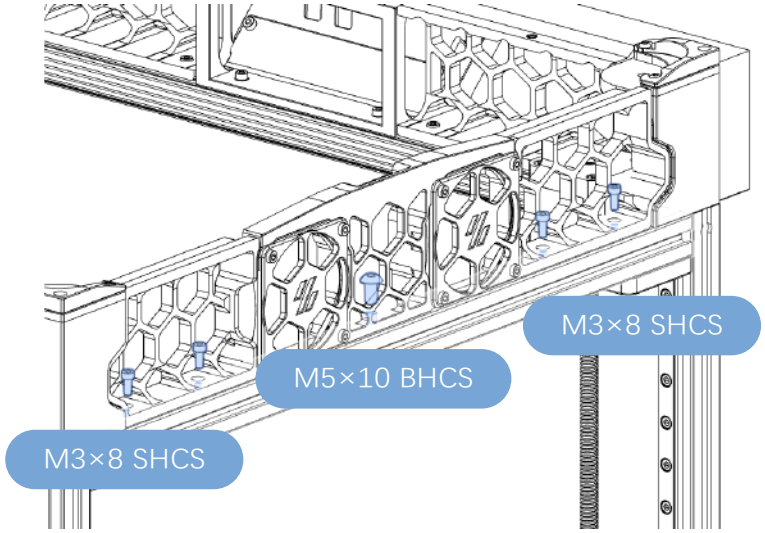


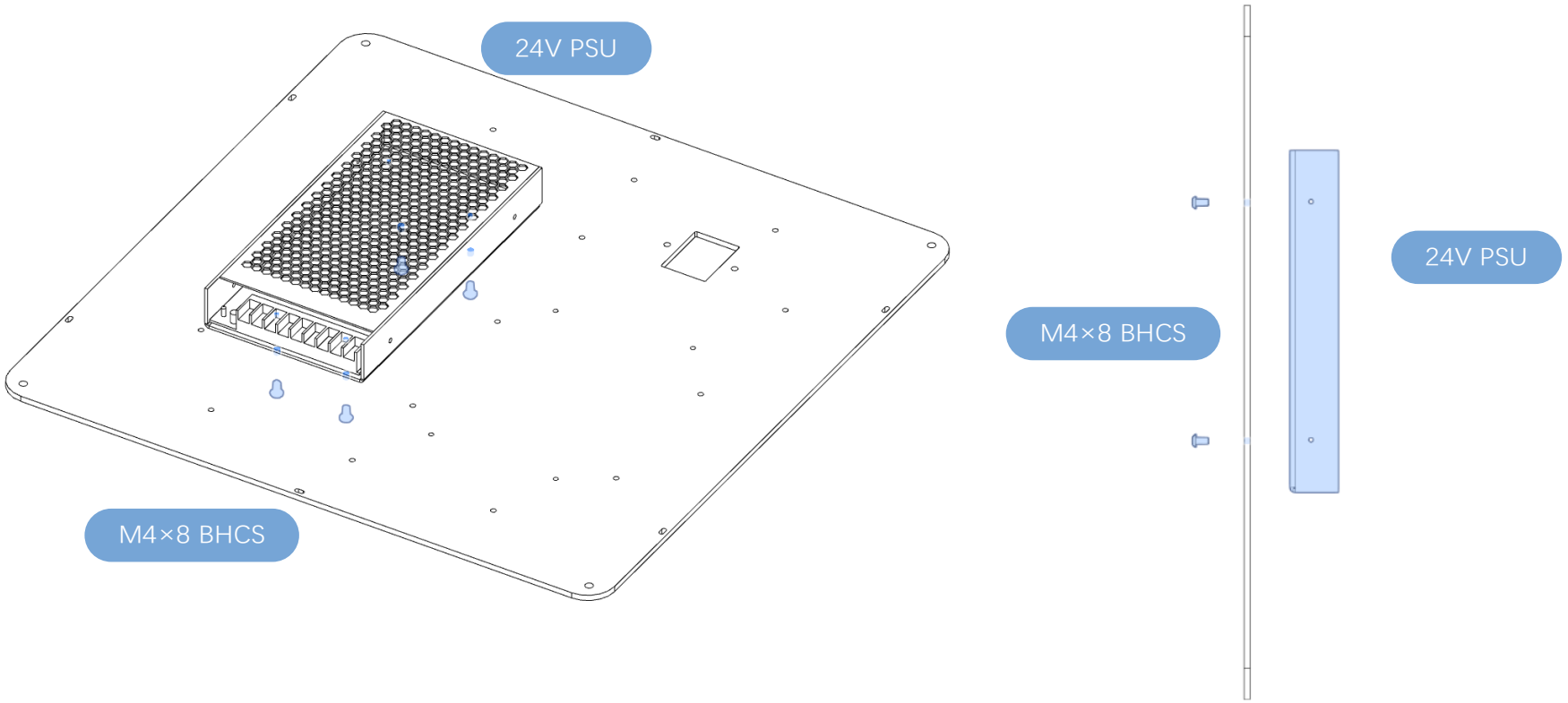

M3×8 SHCS
M5×10 BHCS
M3×8 SHCS


M3 T-Nut
M5 T-Nut
M3 T-Nut


Front
Back
Top

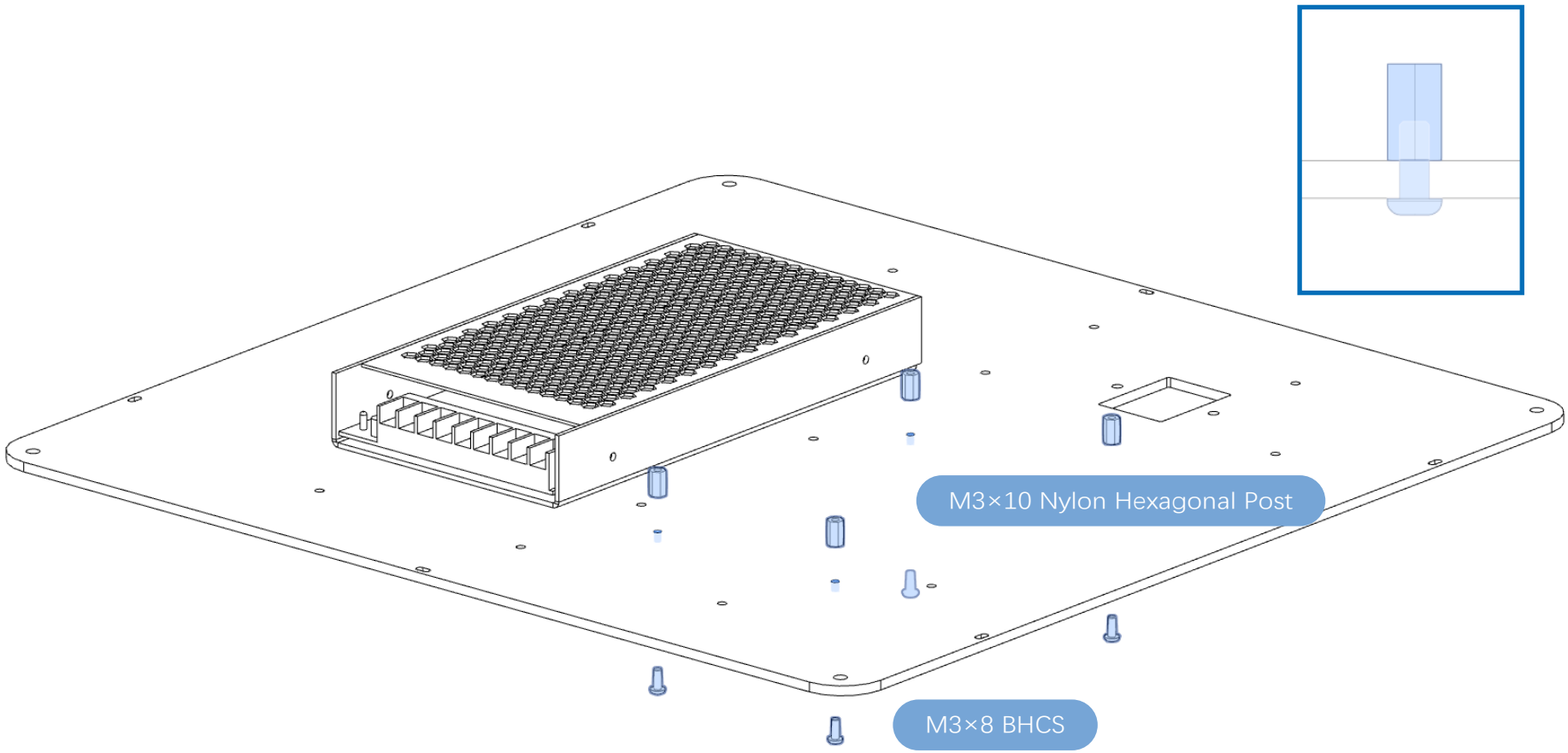


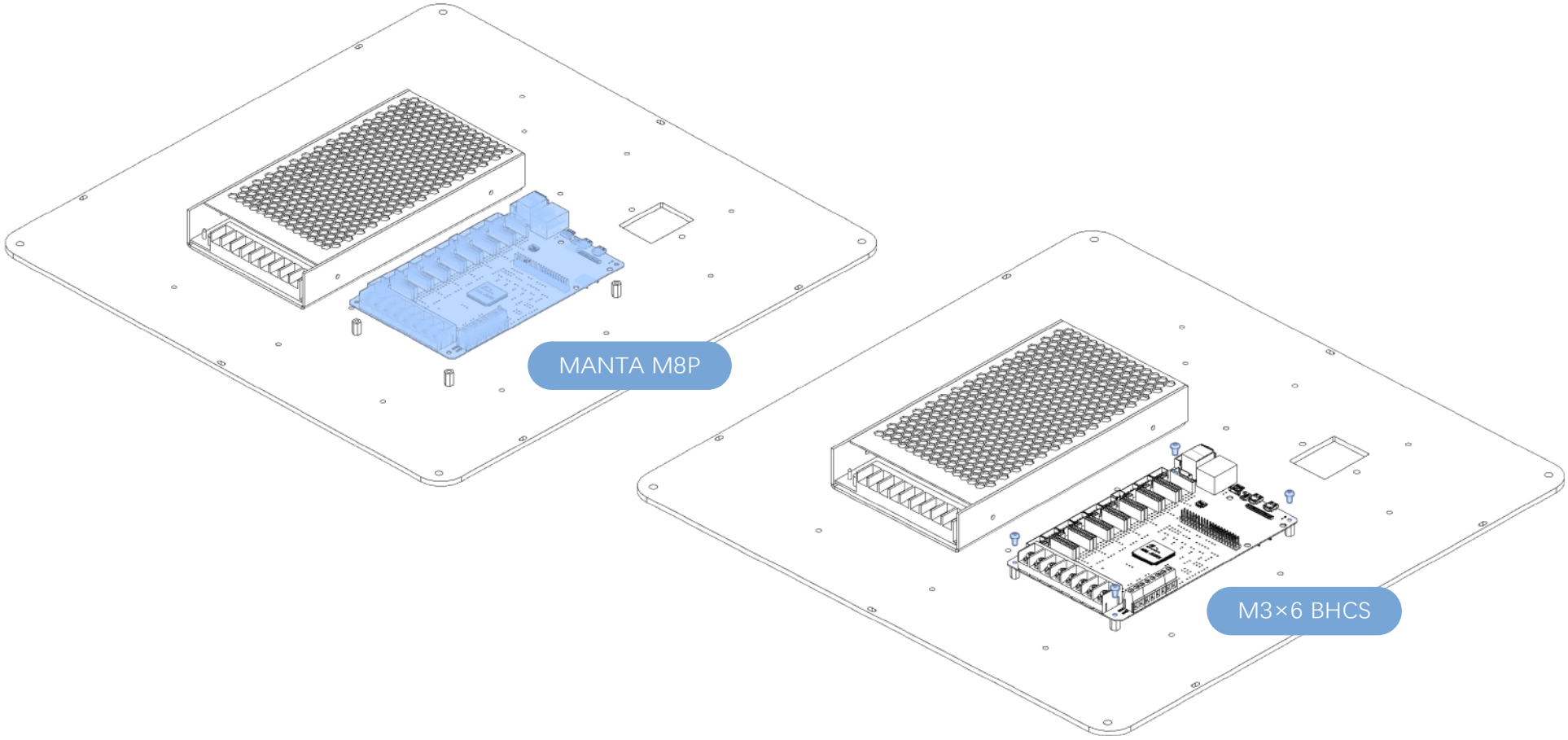

M3×8 SHCS
M5×10 BHCS
M3×8 SHCS

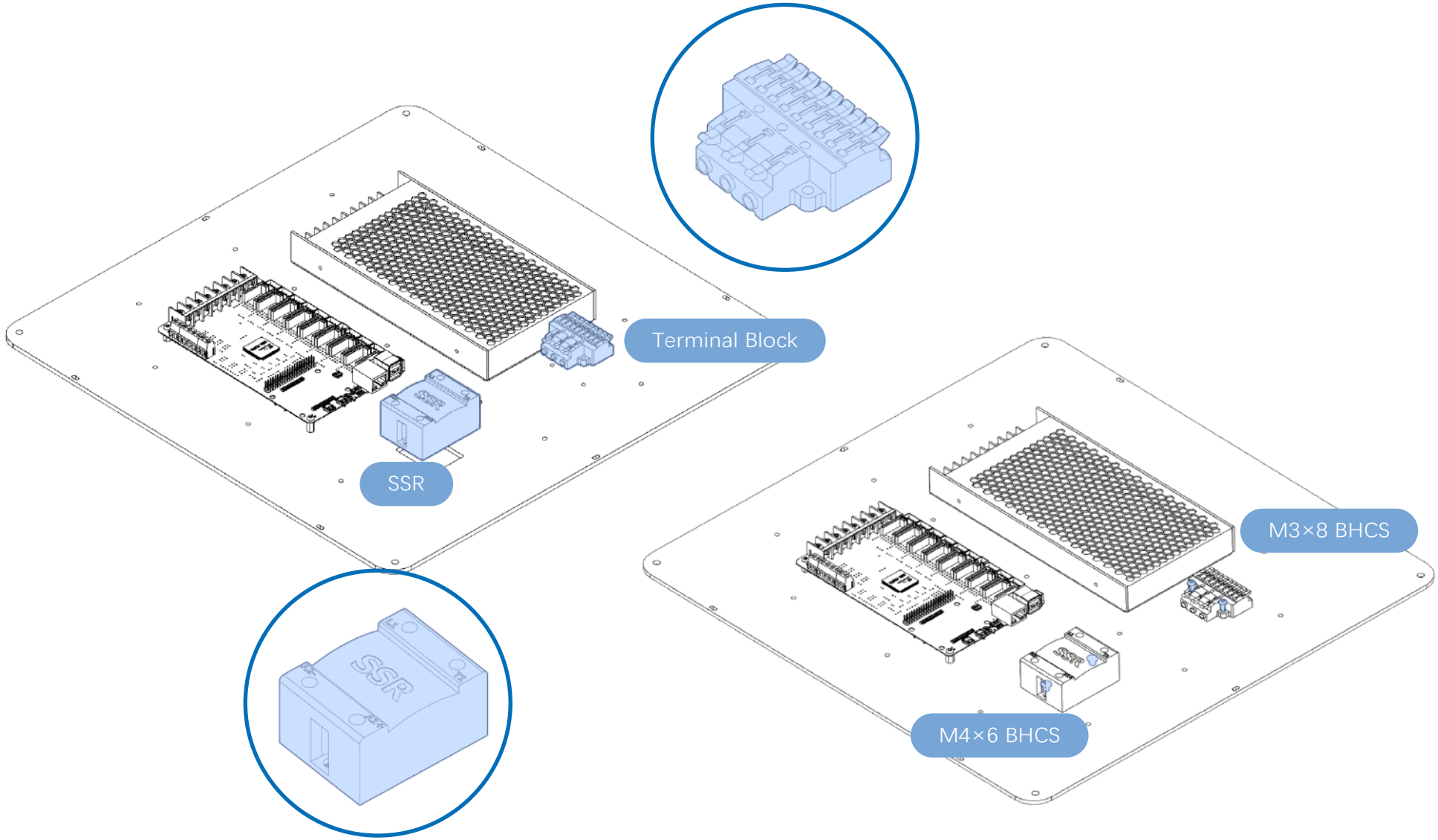


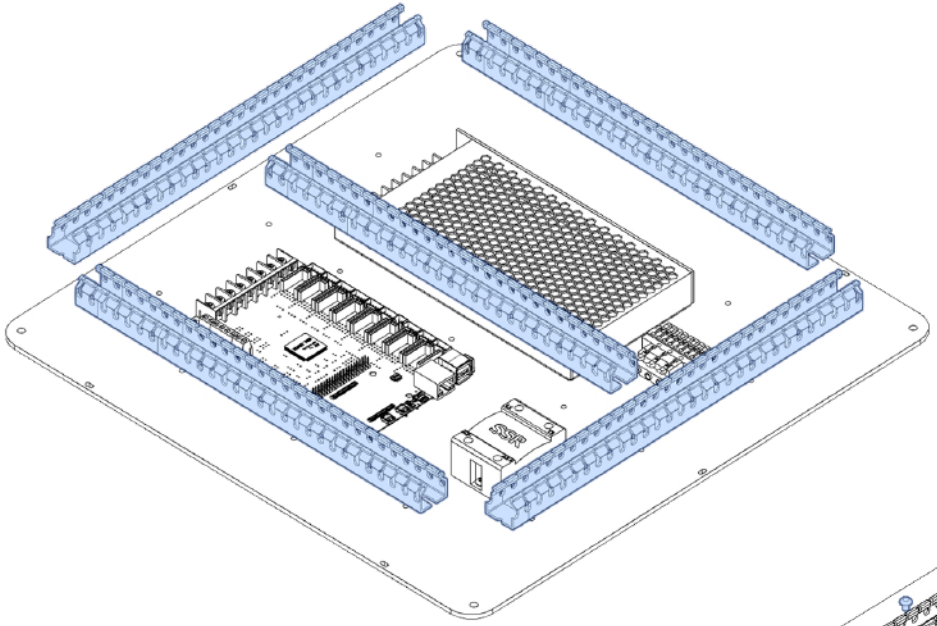
Securing the 24V PSU

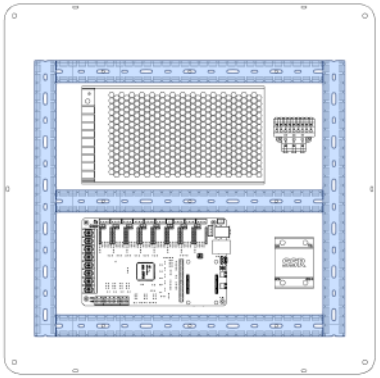
Use M4×8 BHCS screws to secure the 24V PSU to the black base plate.

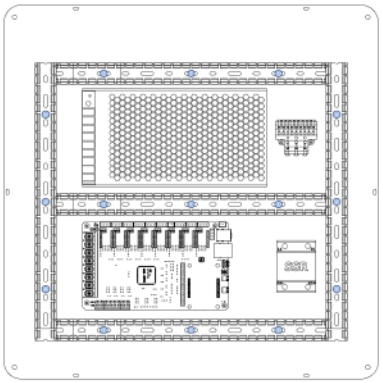

M3×10 Nylon Hexagonal Post
M3×8 BHCS

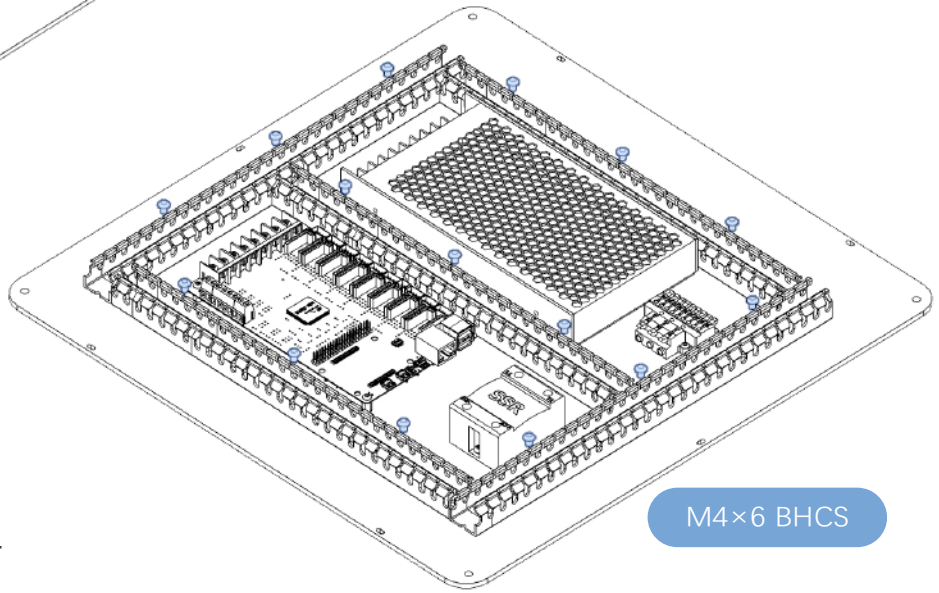

MANTA M8P
M3×6 BHCS


Terminal Block
SSR
M3×8 BHCS
M4×6 BHCS







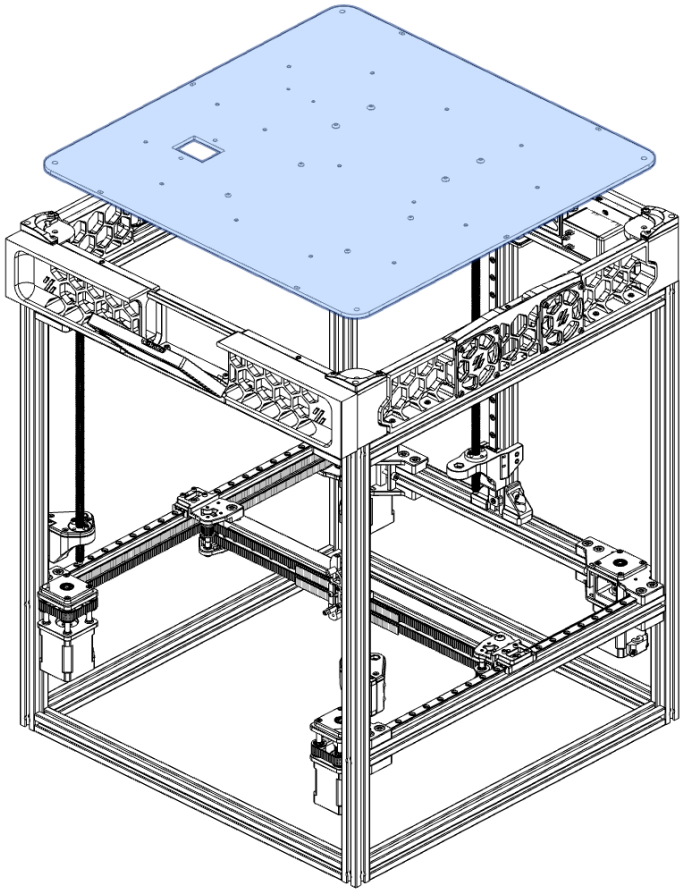


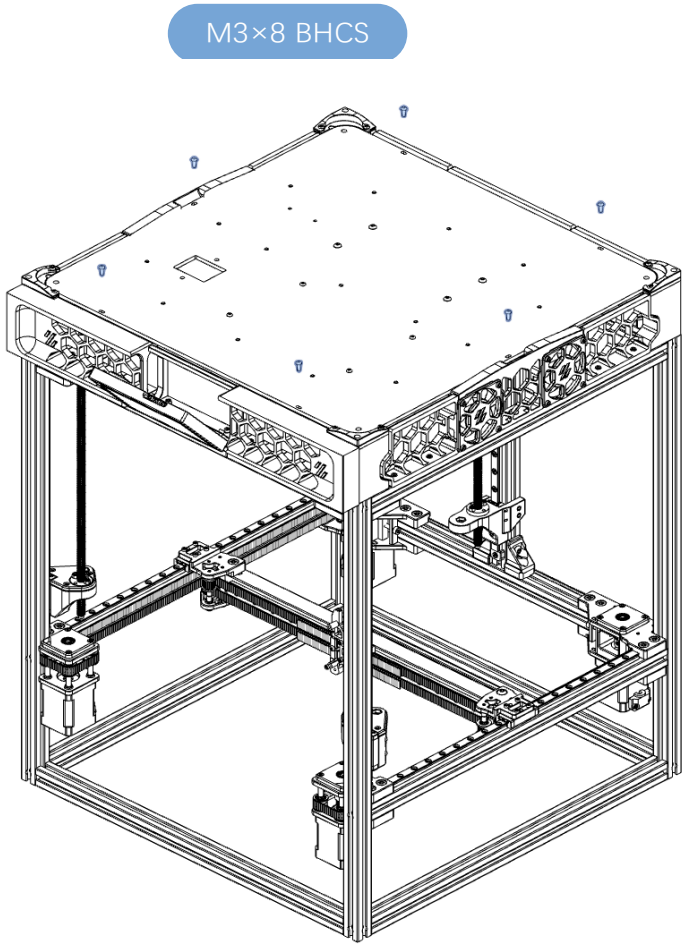
Trimming the Cable Duct

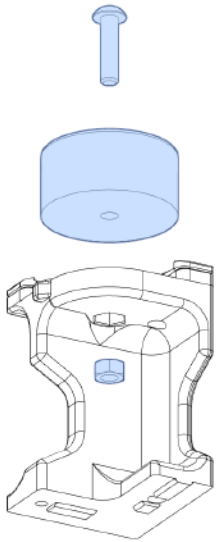
Before cutting the cable duct, place it on the base plate to align with the fixed holes.
Then determine how much to trim from each end.

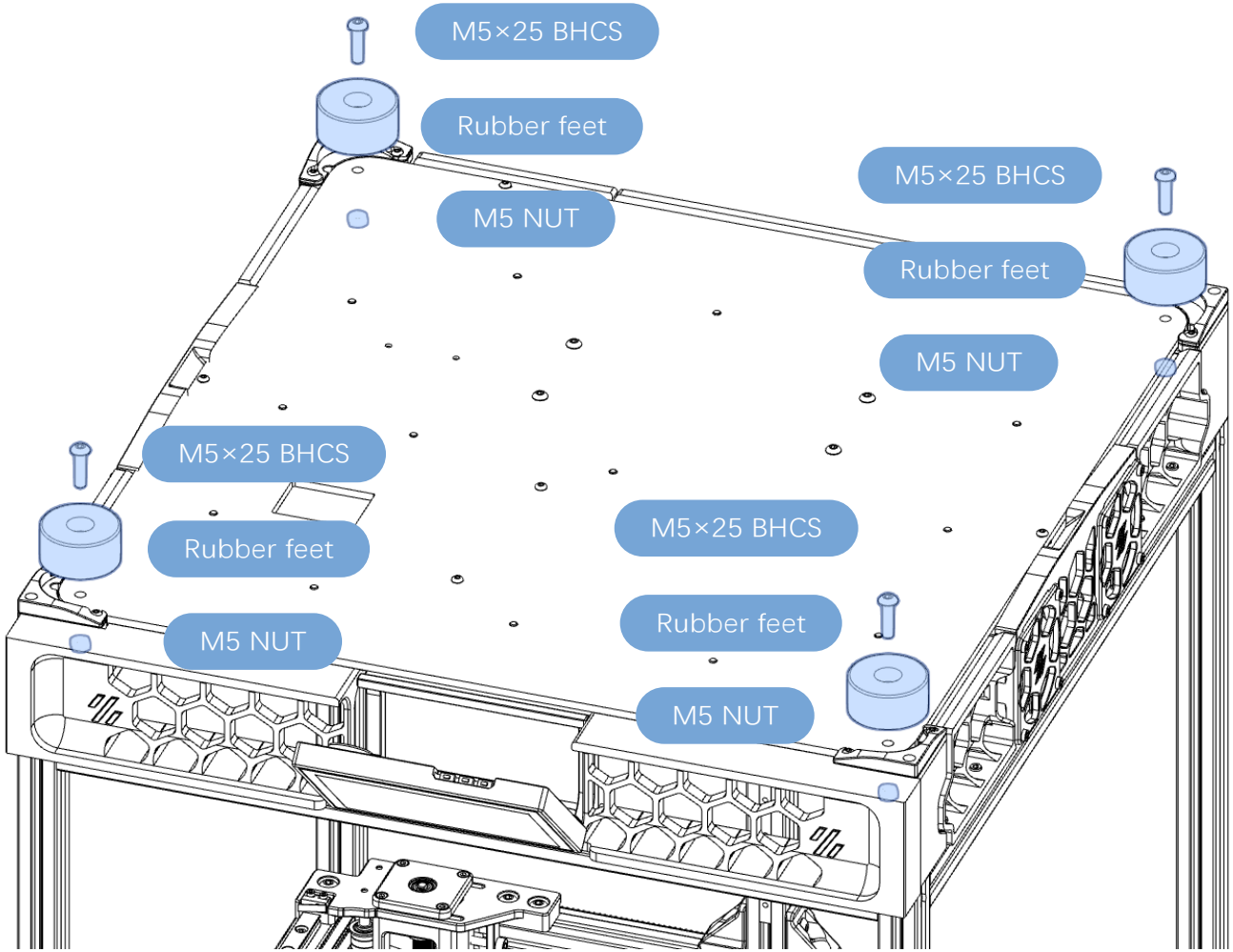
Partial Wiring Before Installing the Base Plate

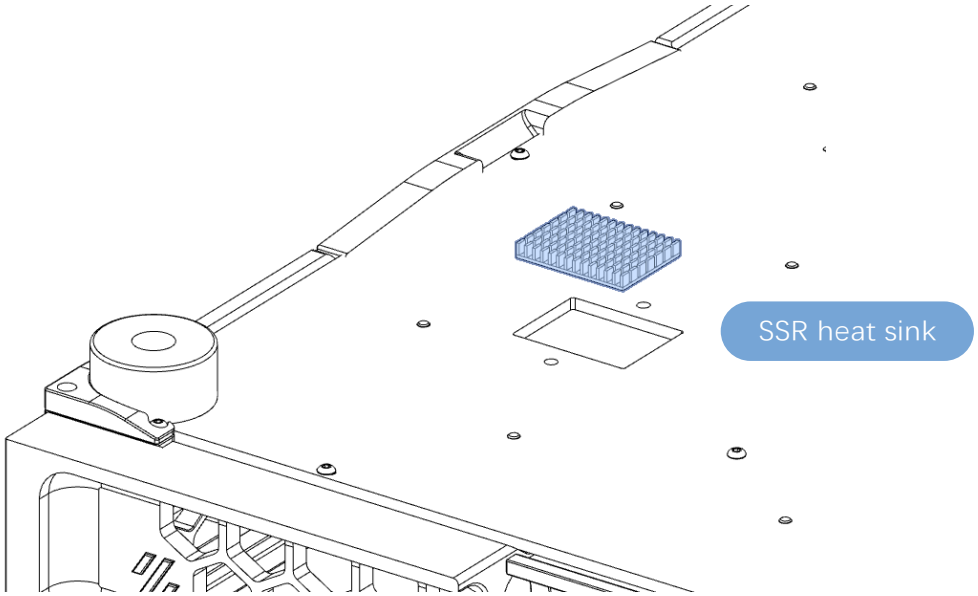
Before installing the base plate, you can start some of the wiring first.
The benefit is that you won't be confined to working within the space of the printer, allowing you to work easily on a desk and save a lot of time. If needed, please refer to pages 187-192.





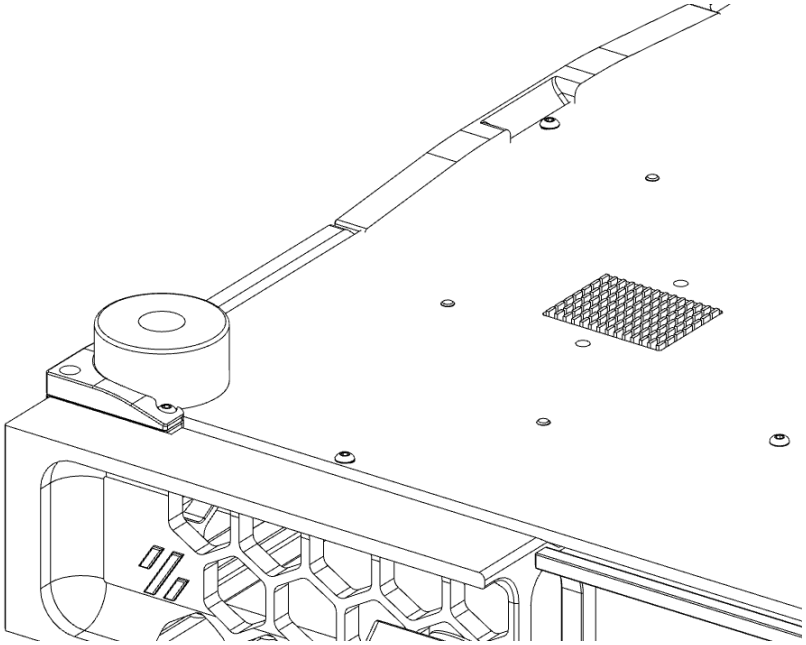



M5×25 BHCS
Rubber feet
M5 NUT
M5×25 BHCS
Rubber feet
M5 NUT
M5×25 BHCS
Rubber feet
M5×25 BHCS
Rubber feet
M5 NUT
M5 NUT

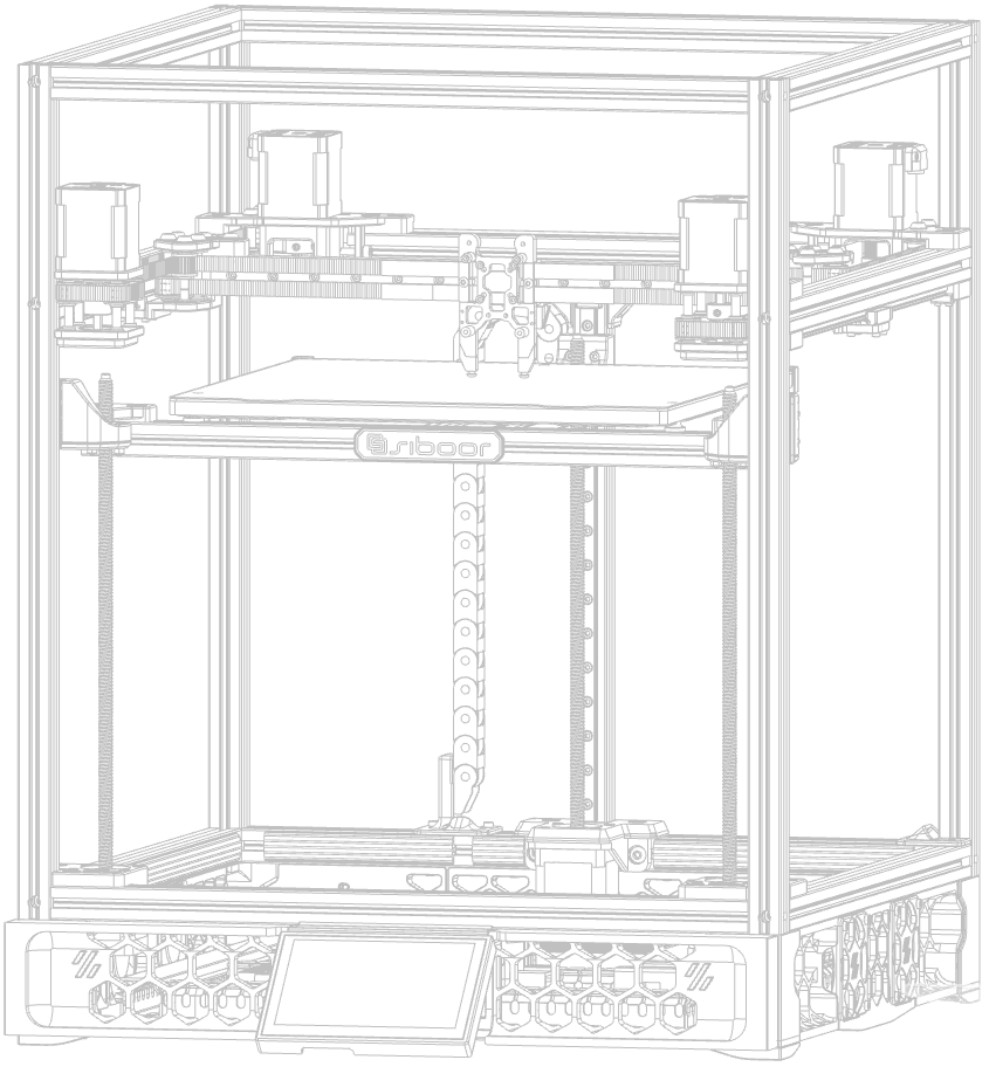


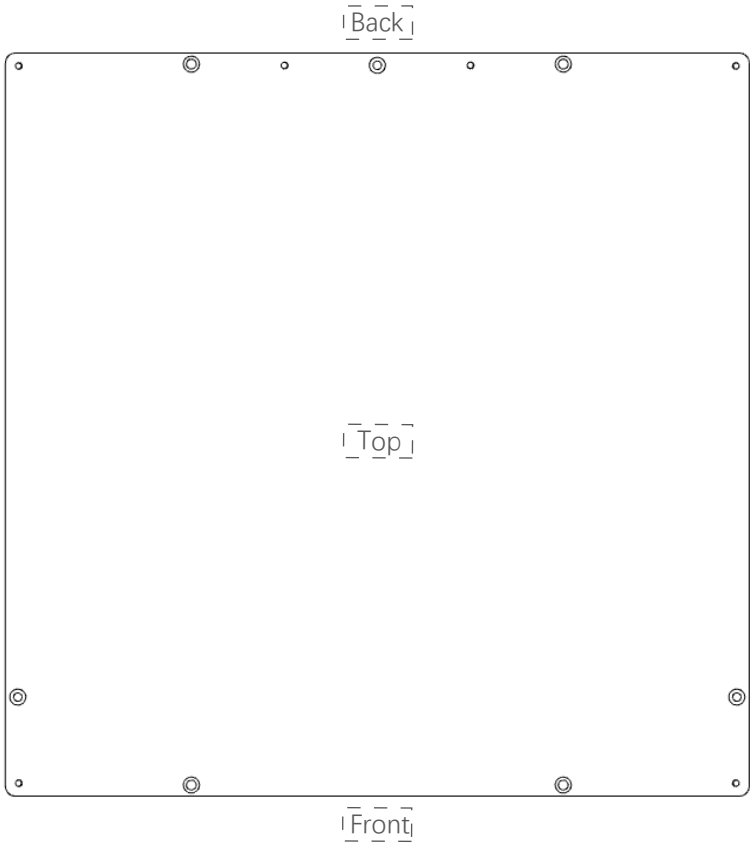
Attaching the SSR Heat Sink

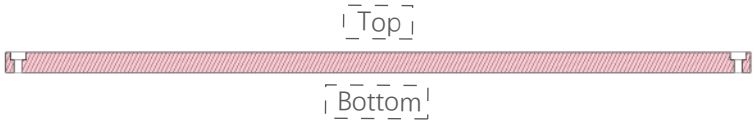
Peel off the double-sided tape from the back of the SSR heat sink, then stick it onto the SSR.

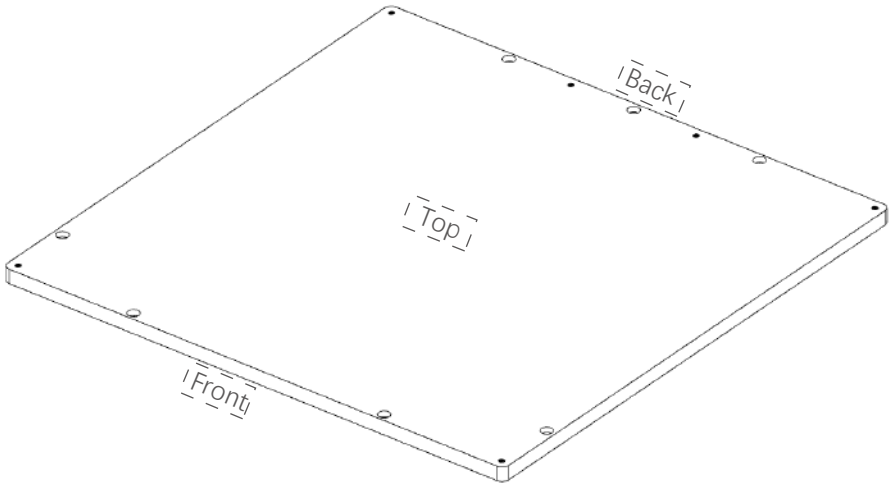


Waiting for the rendered image to fill...





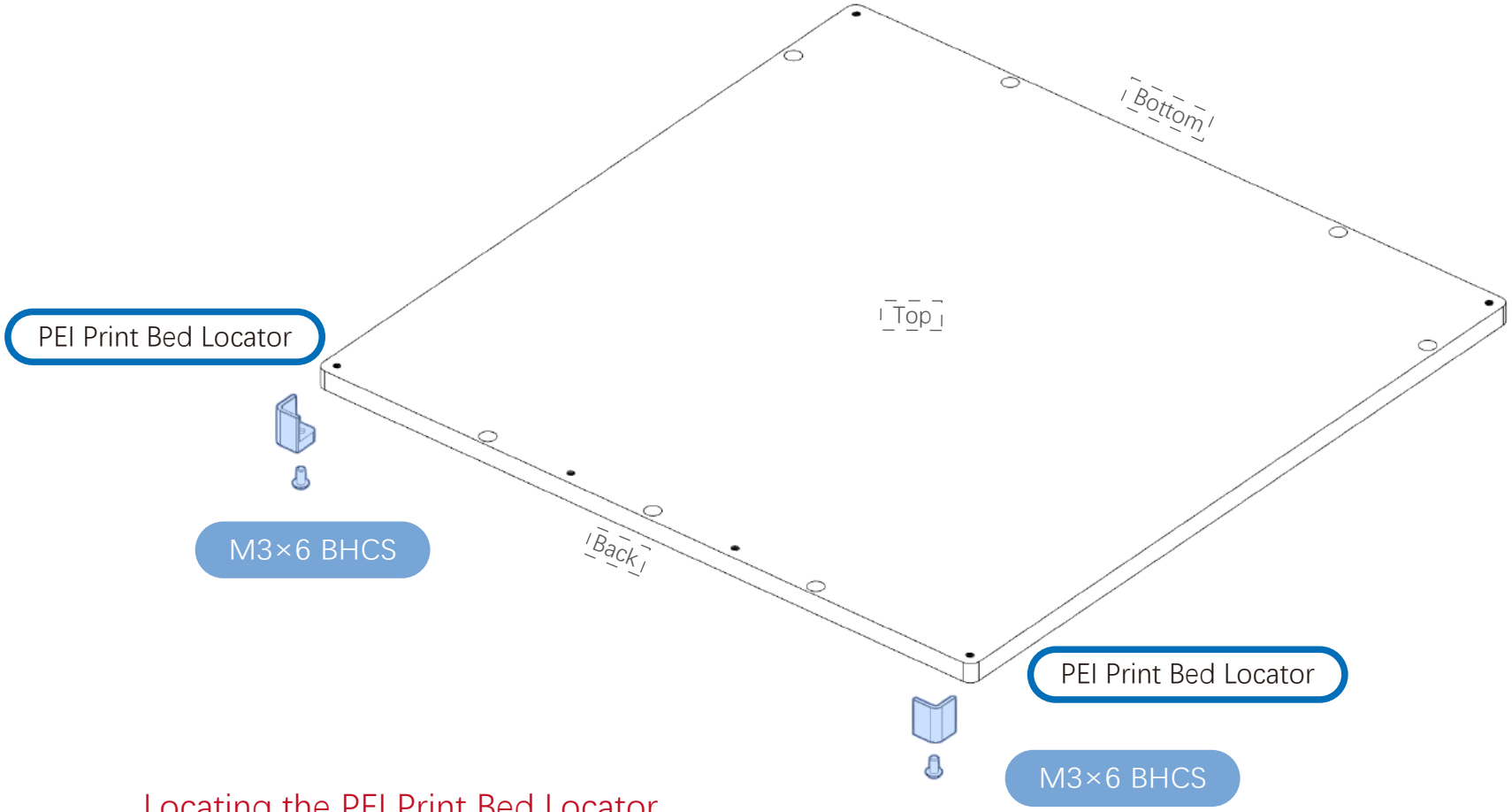




WHICH SIDE IS WHICH?

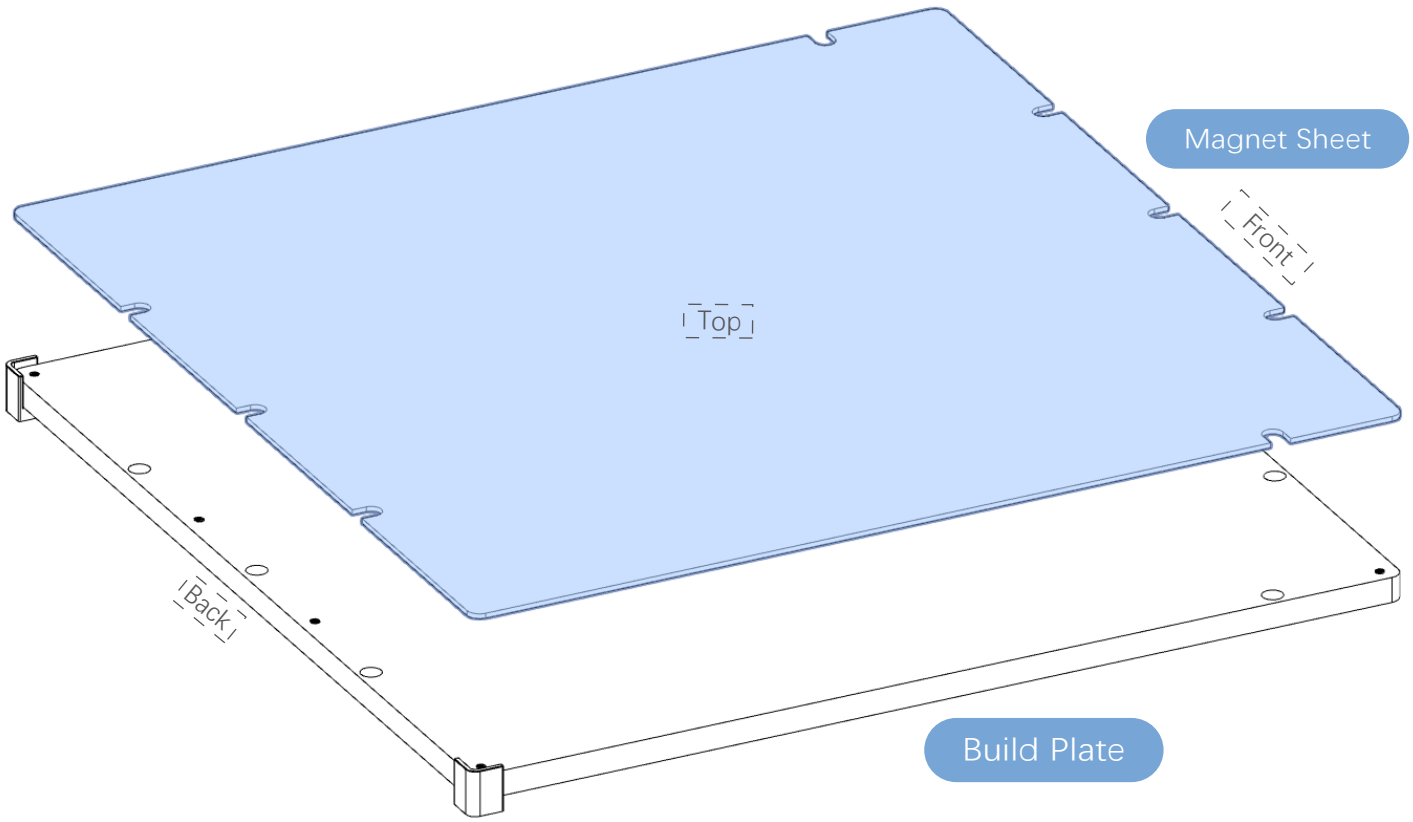
The top of the plate has mounting holes with bores that allow boltheads to sit flush/below the surface.

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

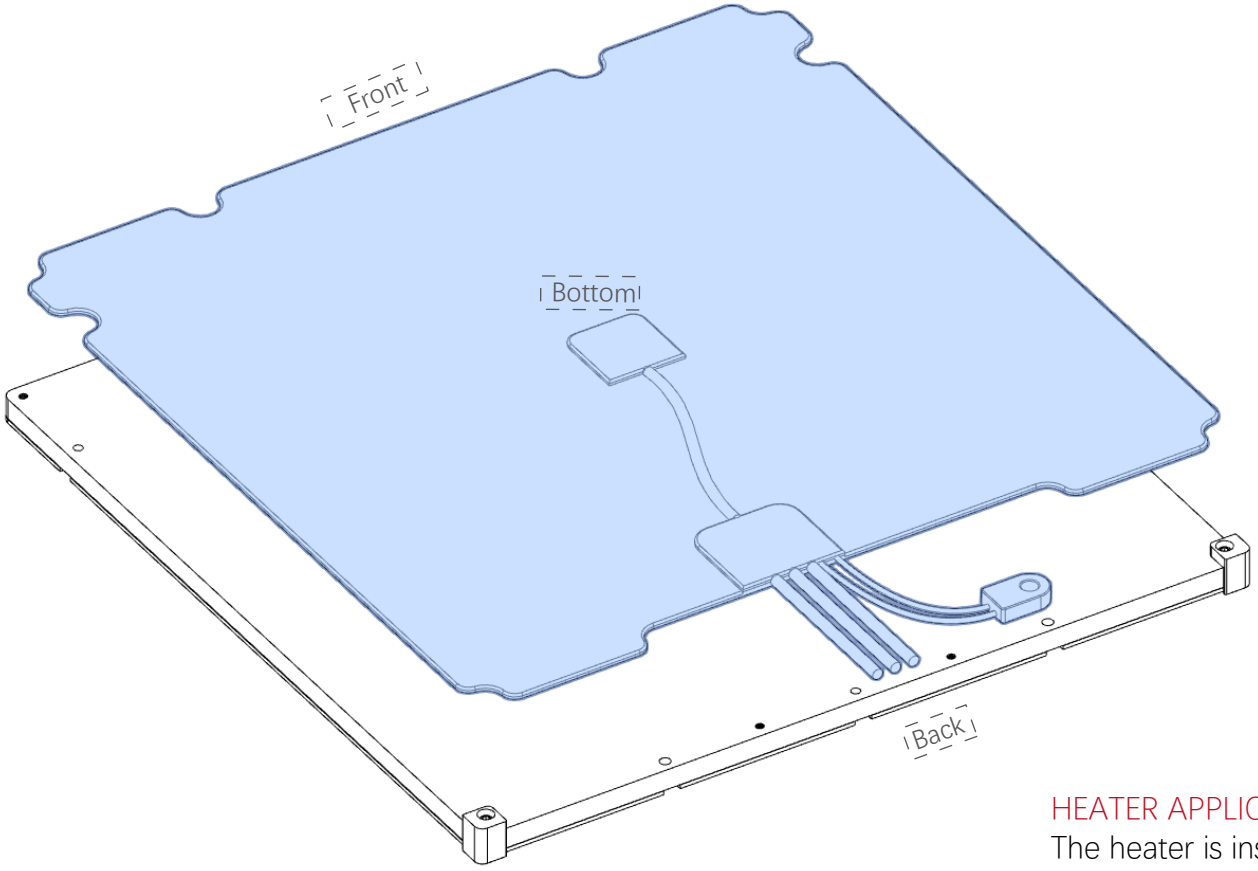
Clean the plate with isopropyl alcohol or similar cleaner prior to applying the magnet.

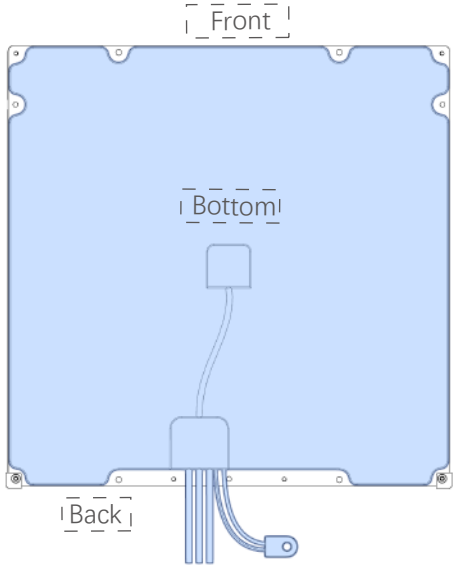
Use the edge of a plastic object or a small roller to firmly press the magnet on the plate to get a good bond.

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

Checking Specifications Before Installing the Bed Heater

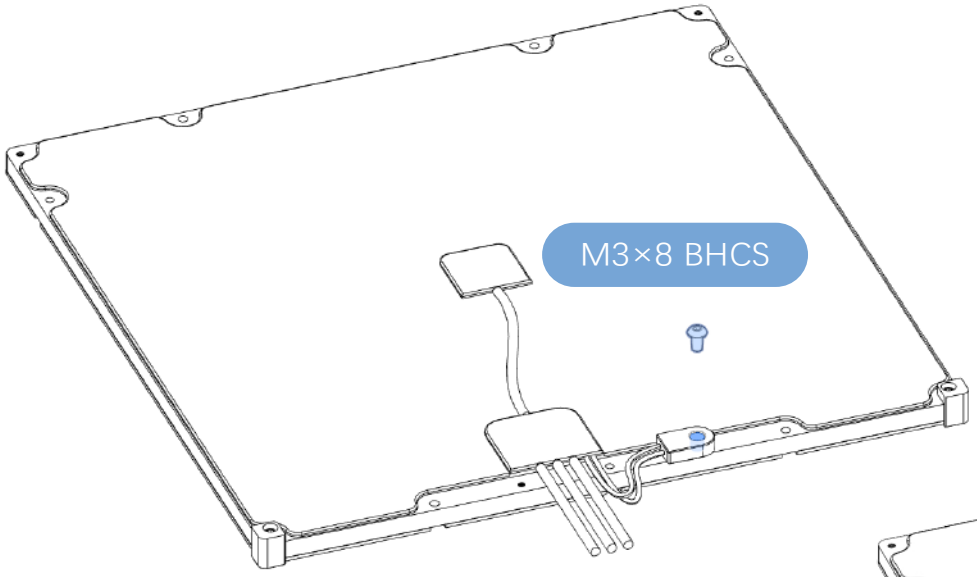
Before installing the Bed Heater, be sure to check the specification information on the surface silkscreen to ensure the voltage matches the power supply voltage in your area!





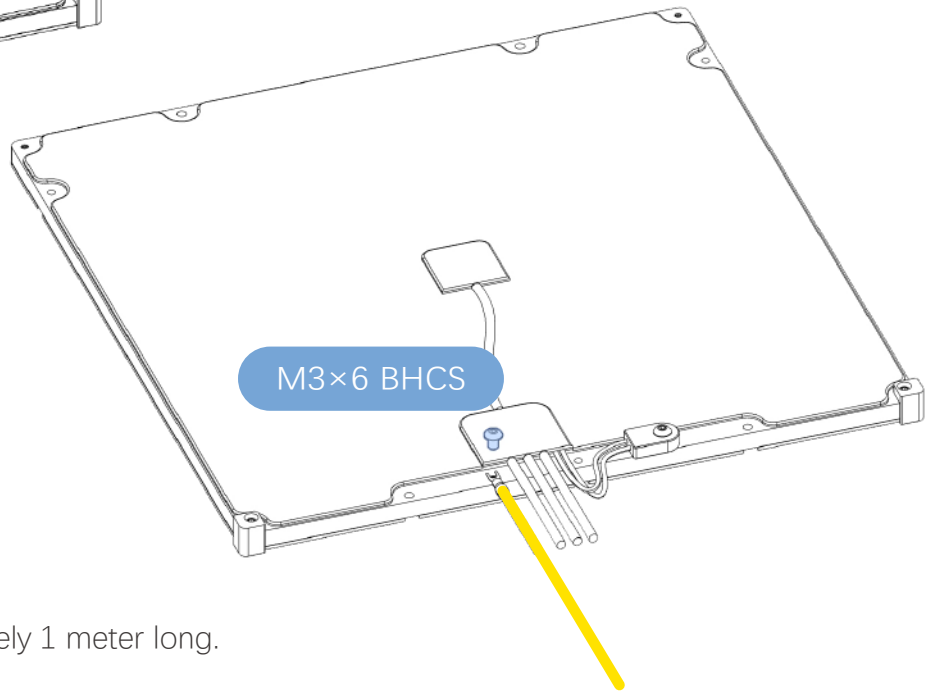
HEATER APPLICATION

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



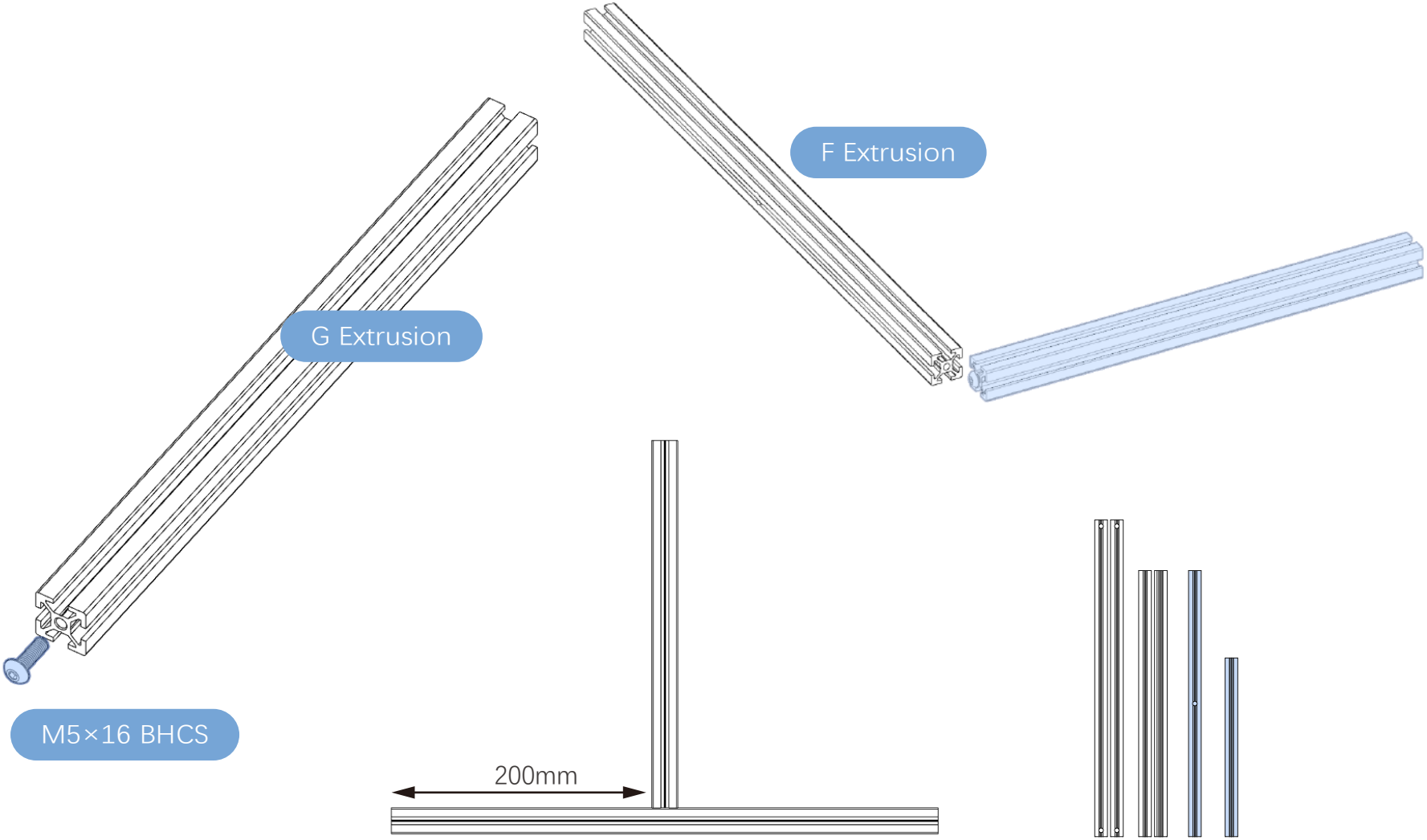
THERMAL FUSE

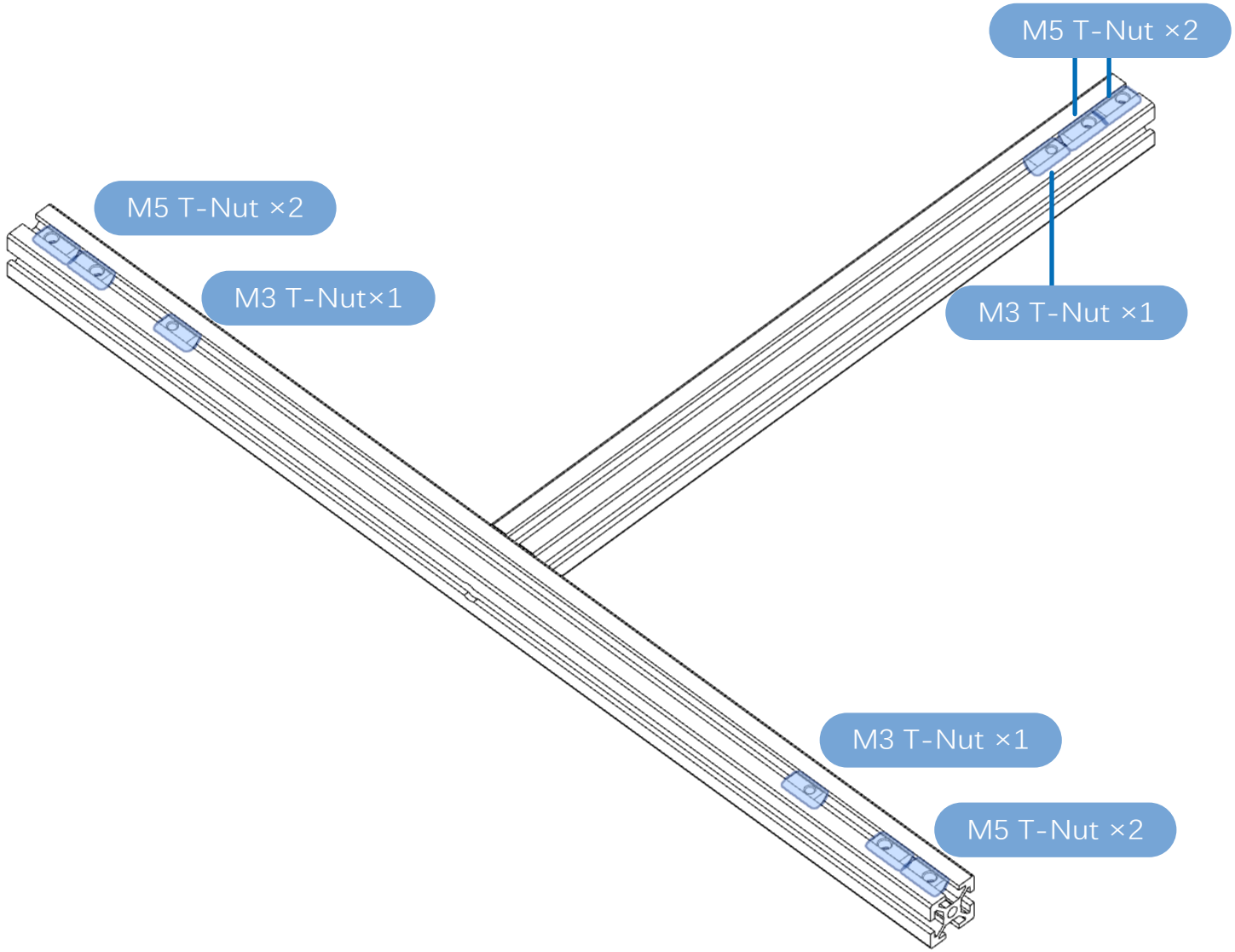
While not required to operate the printer, a thermal fuse attached to the build plate adds an additional layer of protection against potentially dangerous malfunctions.

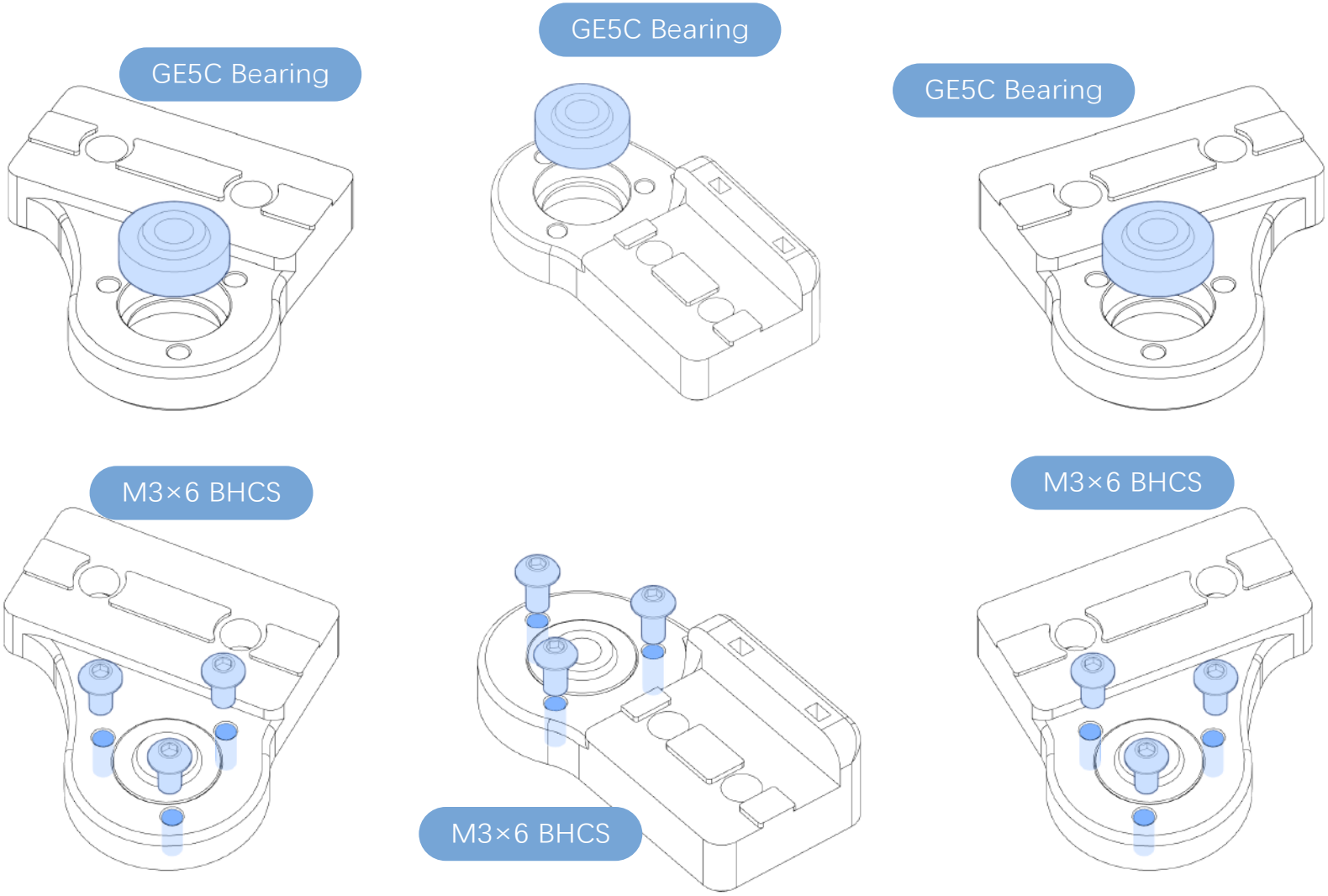


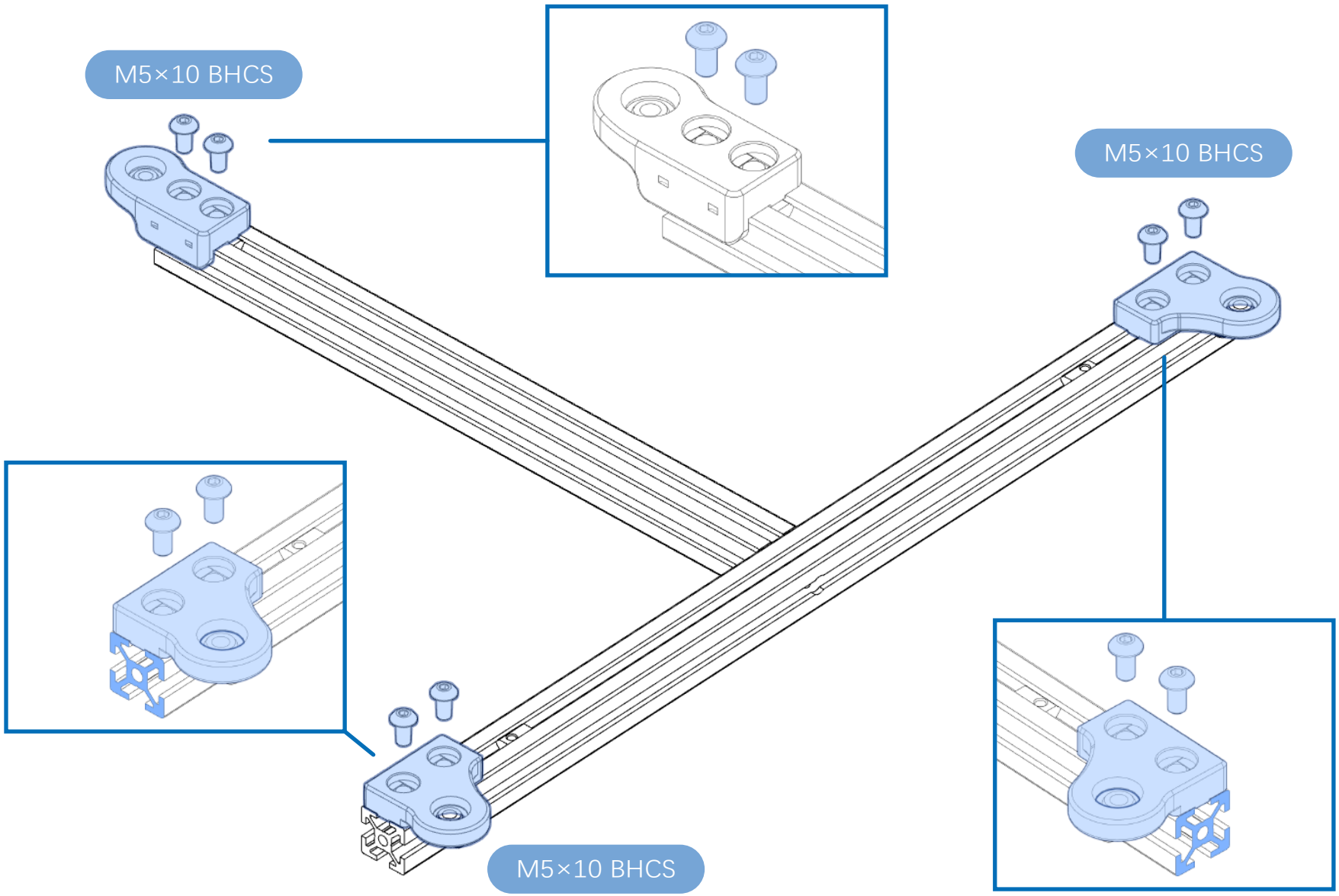
PROTECTIVE EARTH (PE)

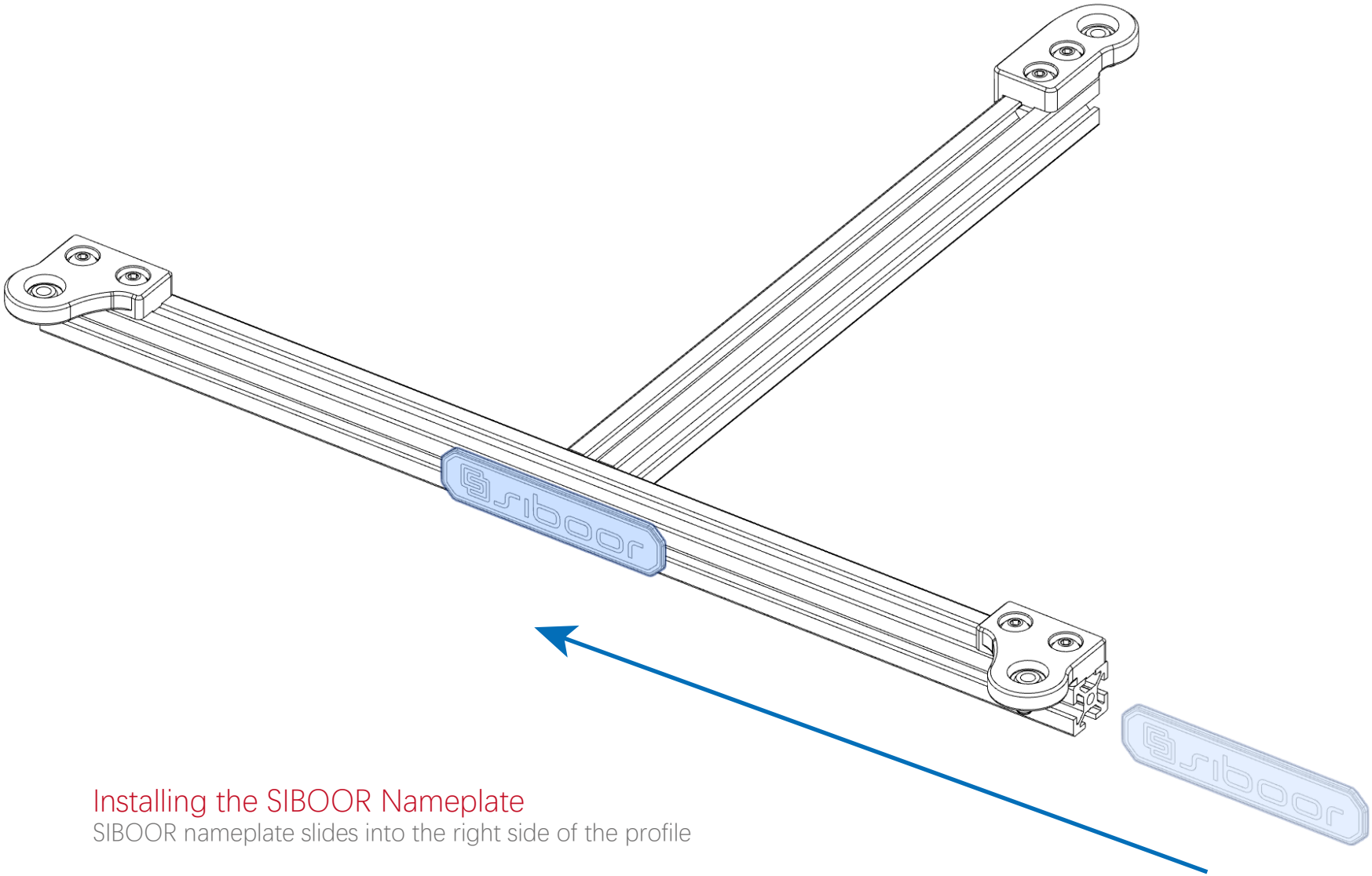
This is a yellow lead approximately 1 meter long.
Please find it in the KIT.


F Extrusion
G Extrusion
M5×16 BHCS
200mm


M5 T-Nut ×2
M5 T-Nut ×2
M3 T-Nut×1
M3 T-Nut ×1
M3 T-Nut ×1
M5 T-Nut ×2

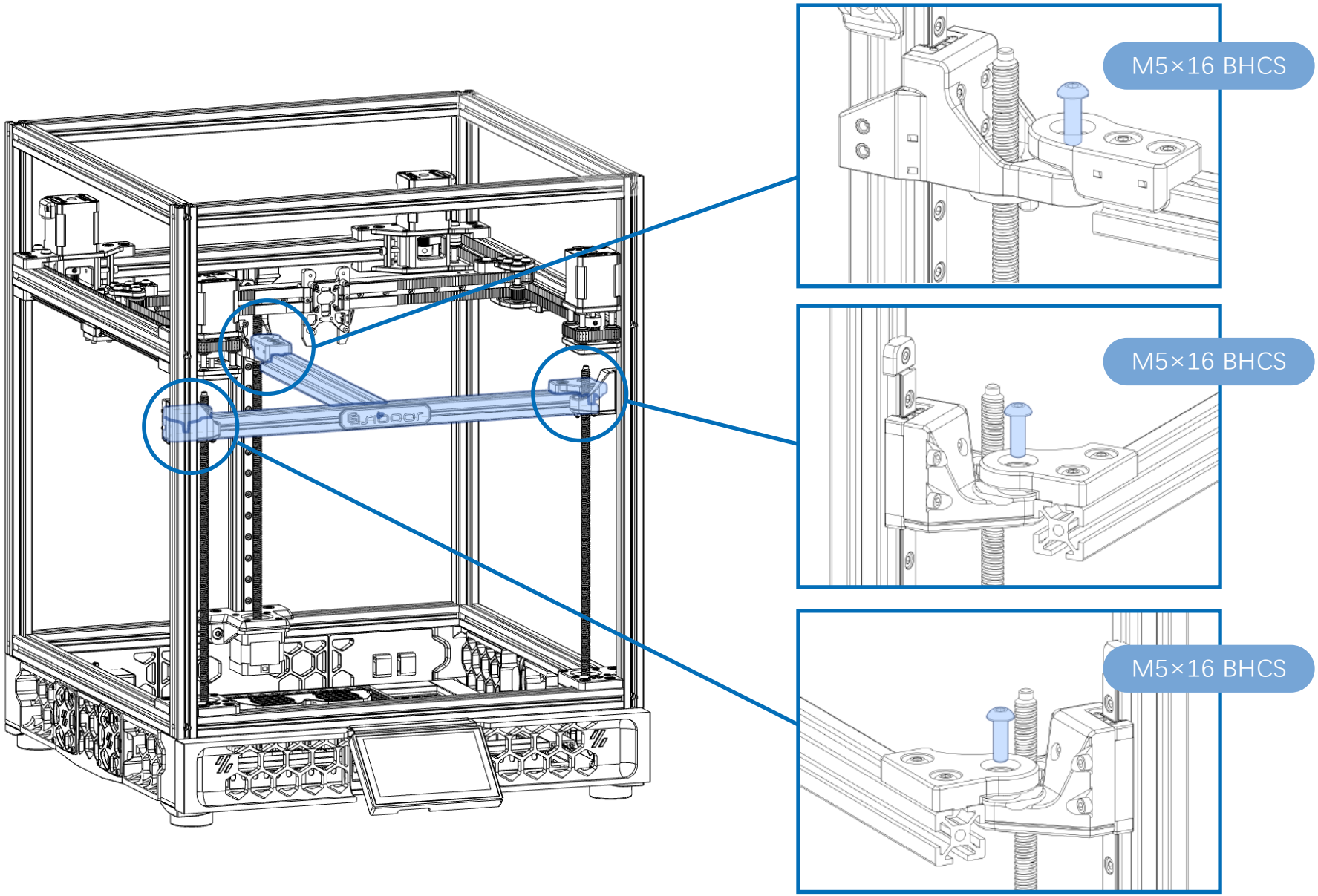

GE5C Bearing
GE5C Bearing
GE5C Bearing
M3×6 BHCS
M3×6 BHCS
M3×6 BHCS

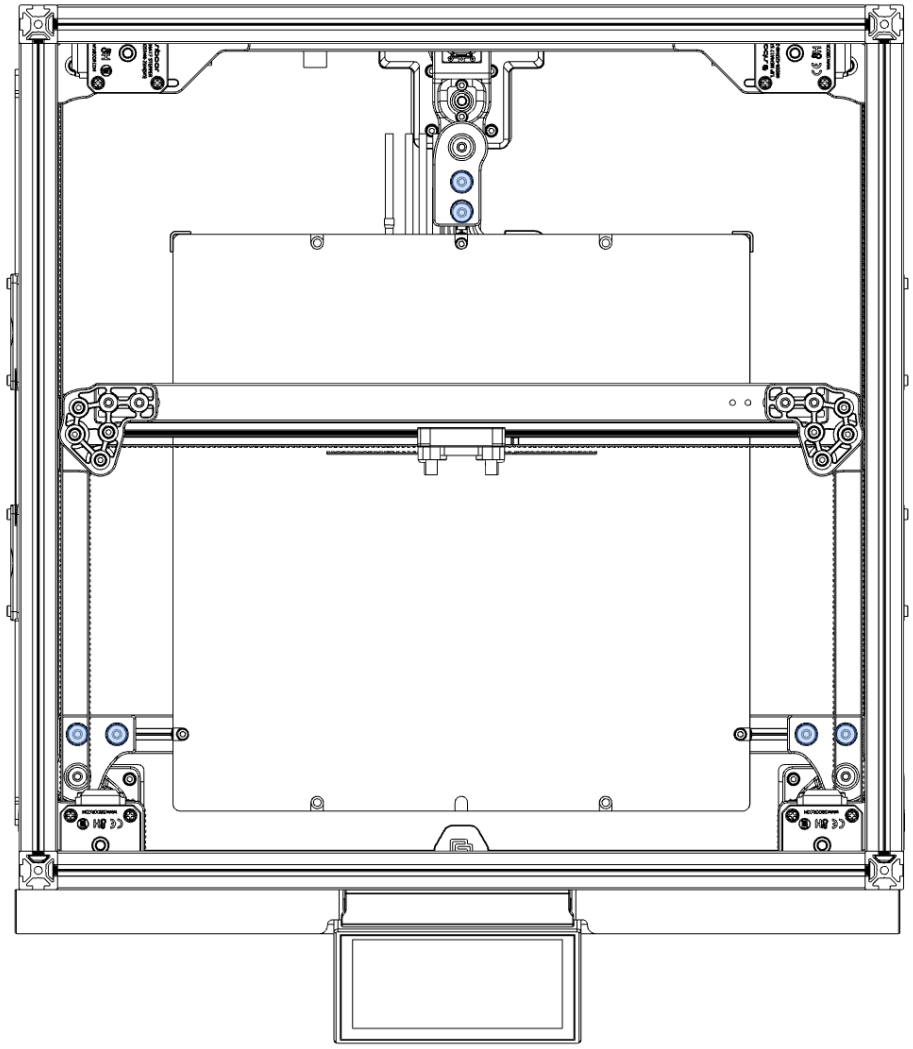

M5×10 BHCS
M5×10 BHCS
M5×10 BHCS



Installing the SIBOOR Nameplate

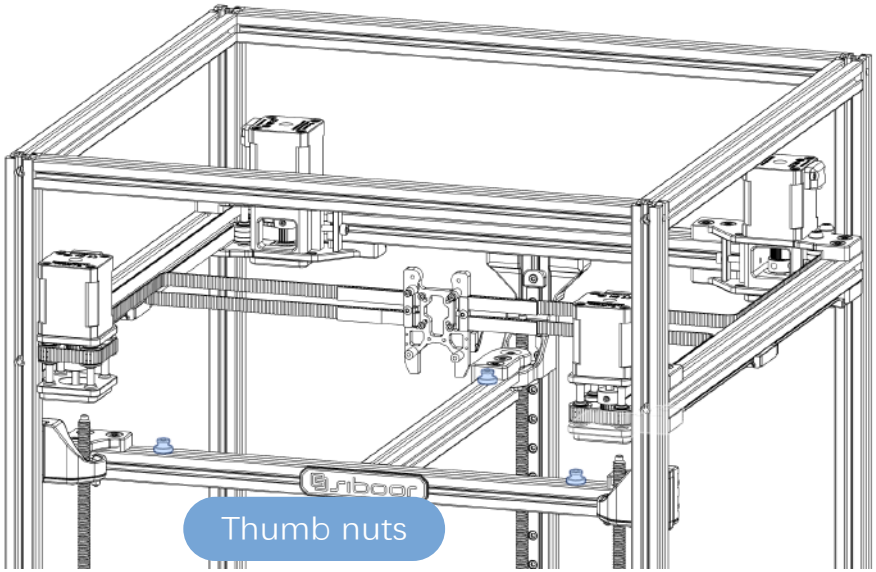
SIBOOR nameplate slides into the right side of the profile

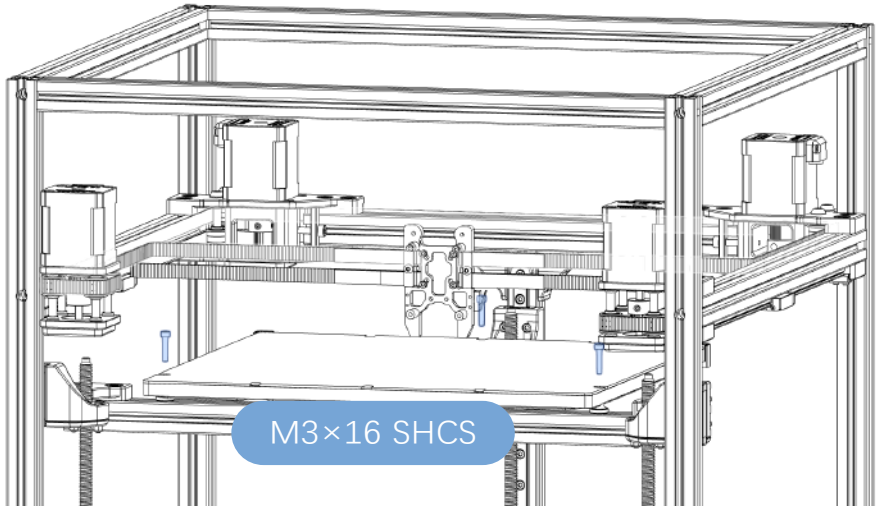

M5×16 BHCS
M5×16 BHCS
M5×16 BHCS

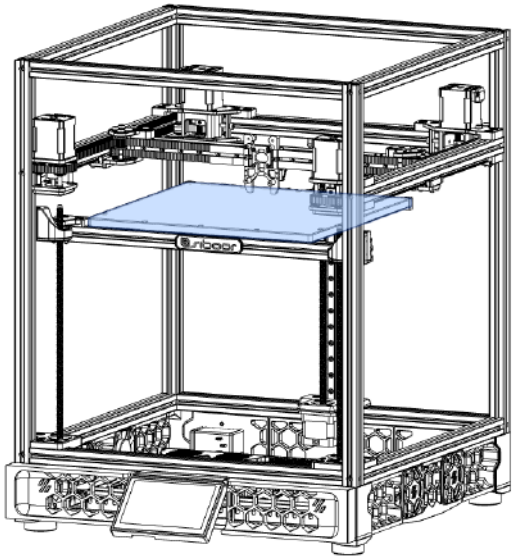


LOOSEN AND RETIGHTEN

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



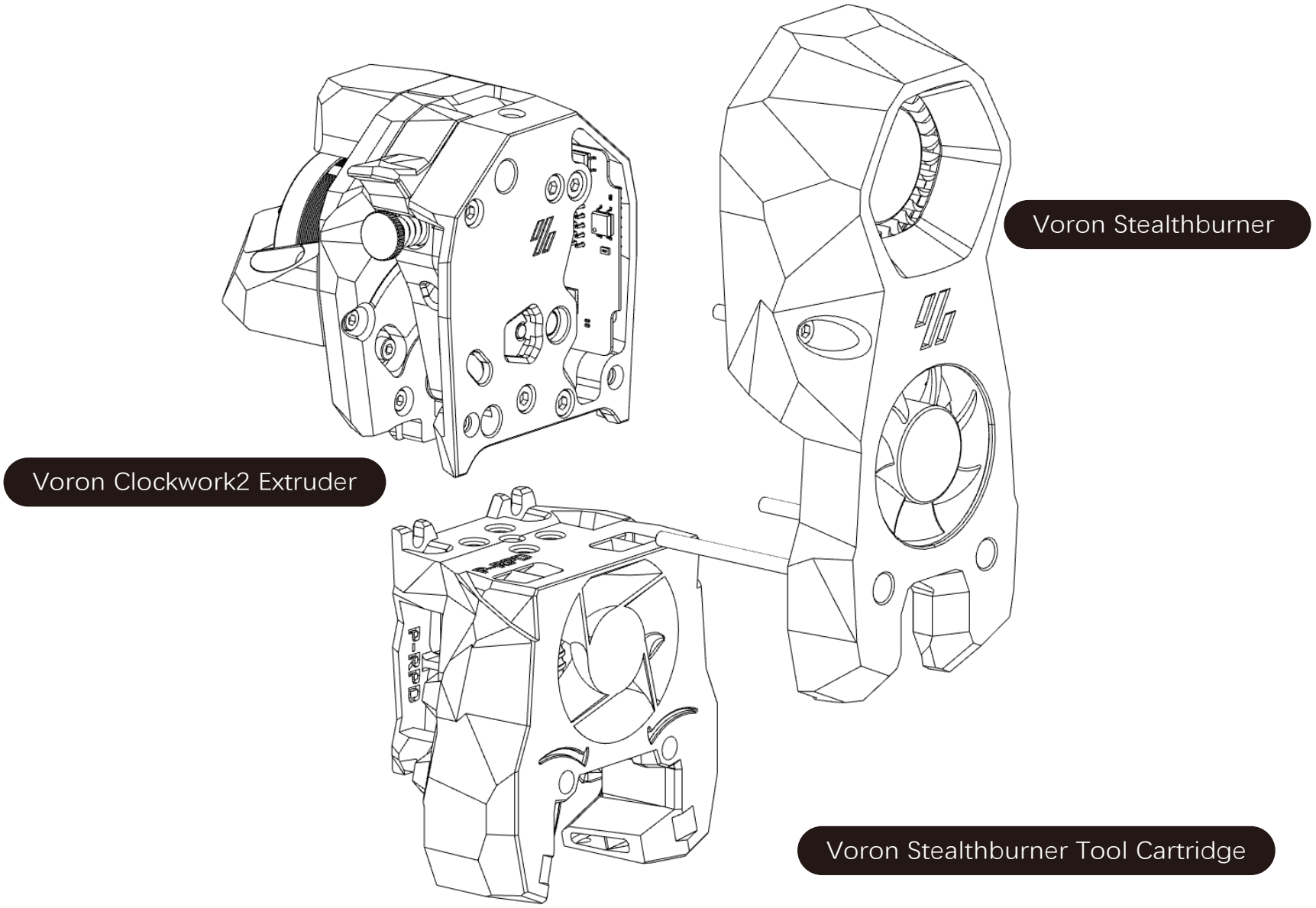


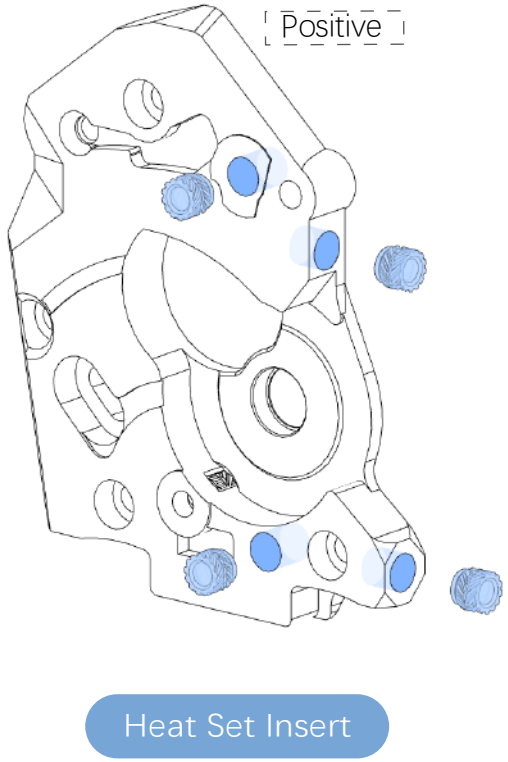


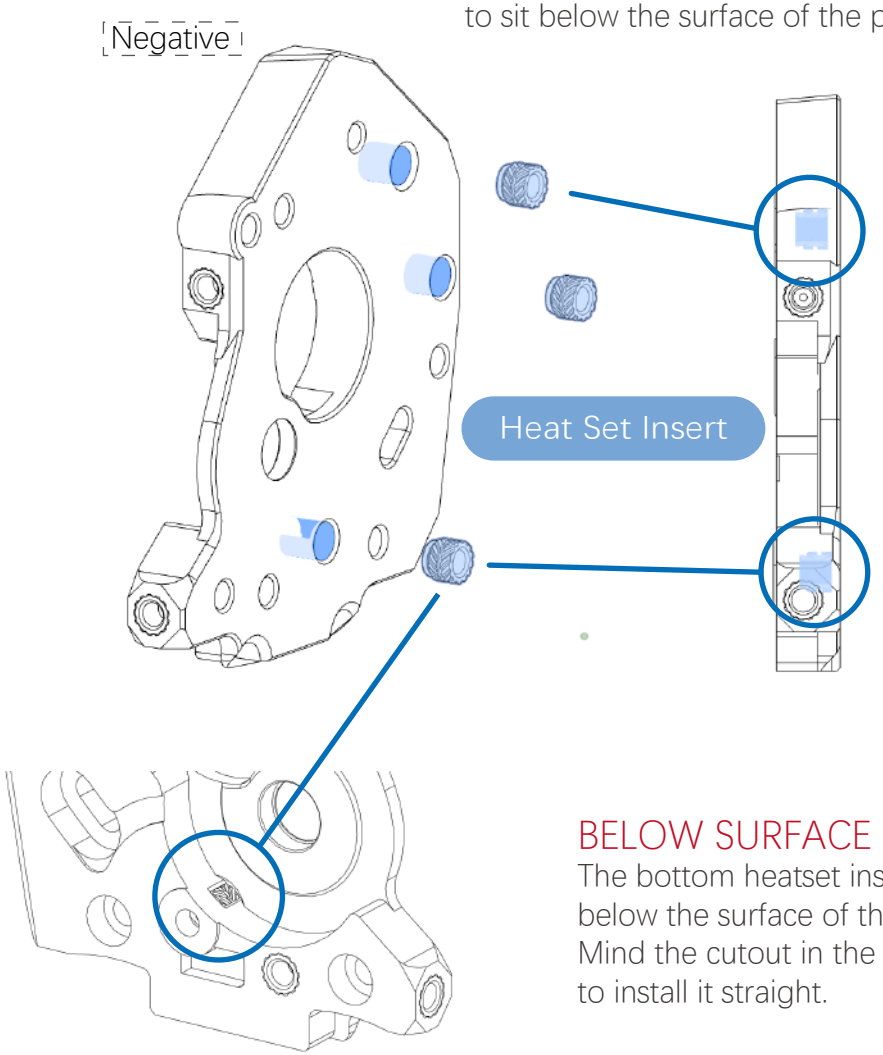
Alternative Experimental Solution

The KIT also provides an alternative approach for mounting the bed. Using insulation columns and PEEK M3×16 SHCS screws, temperature transfer from the bed to extrusions is reduced. This helps prevent thermal expansion from deforming the frame.

The way the bed is attached remains the same, but it's crucial to remember that PEEK screws can break. When installing, avoid using excessive force to prevent breaking the PEEK screws.


Voron Stealthburner
Voron Clockwork2 Extruder
Voron Stealthburner Tool Cartridge



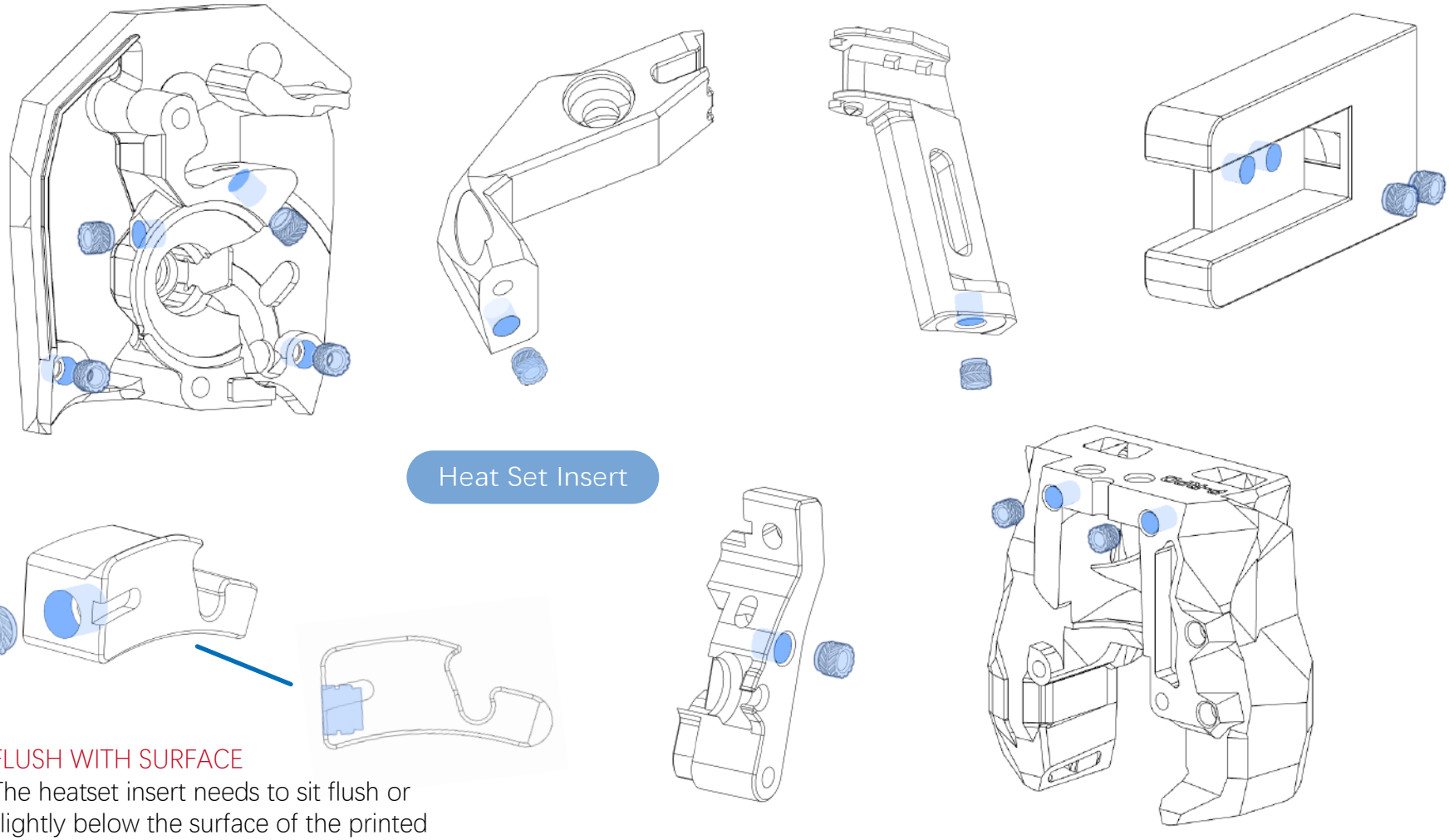


BELOW SURFACE

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

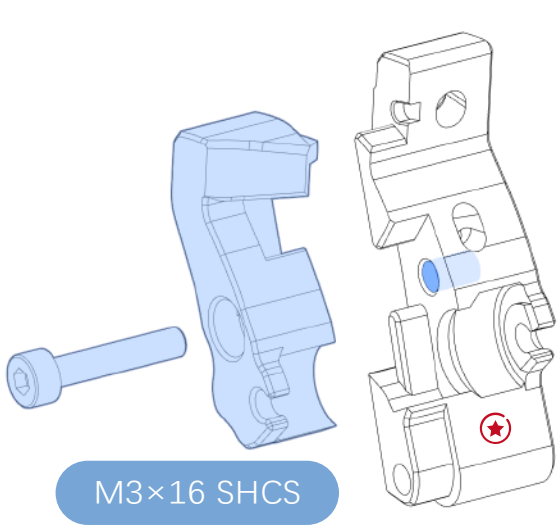
BELOW SURFACE

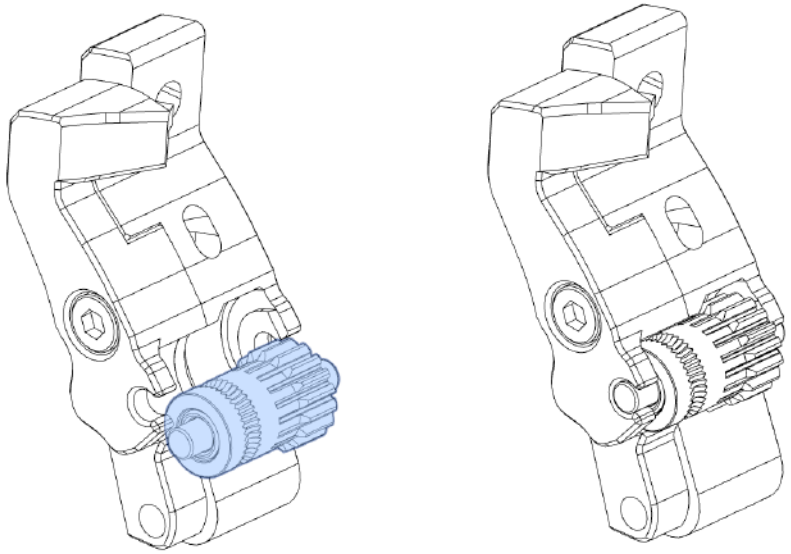
The bottom heatset insert needs to sit
below the surface of the printed part.
Mind the cutout in the part and make sure
to install it straight.

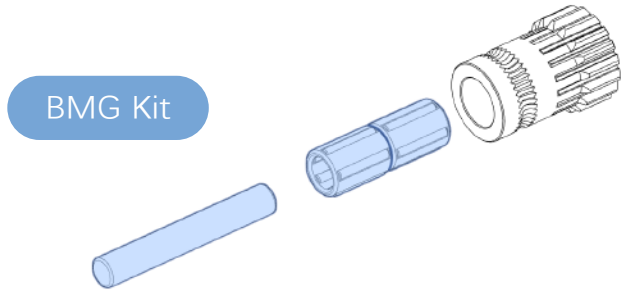


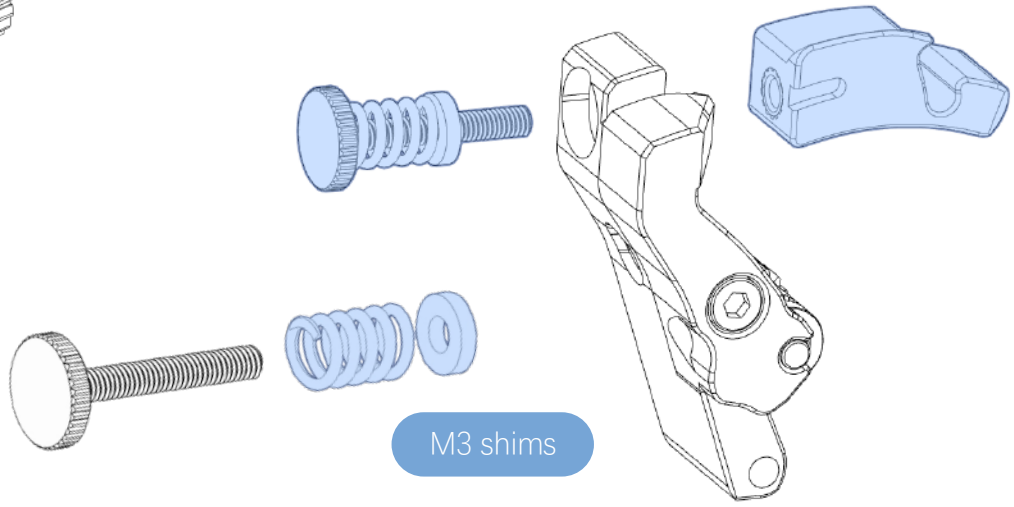
FLUSH WITH SURFACE

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



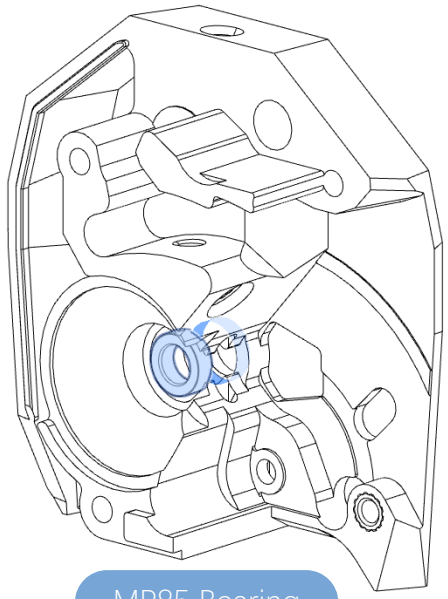




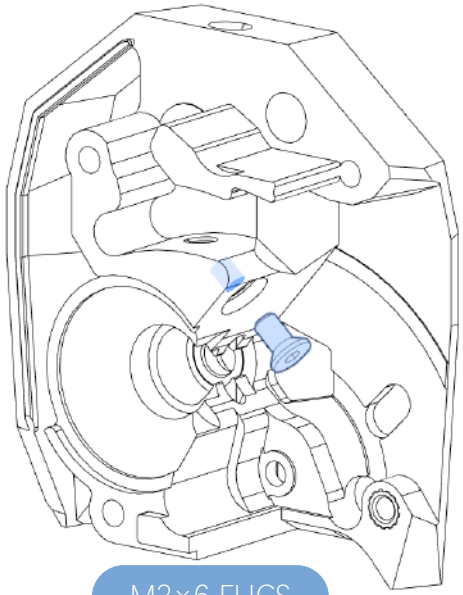


LUBRICATE BEARINGS

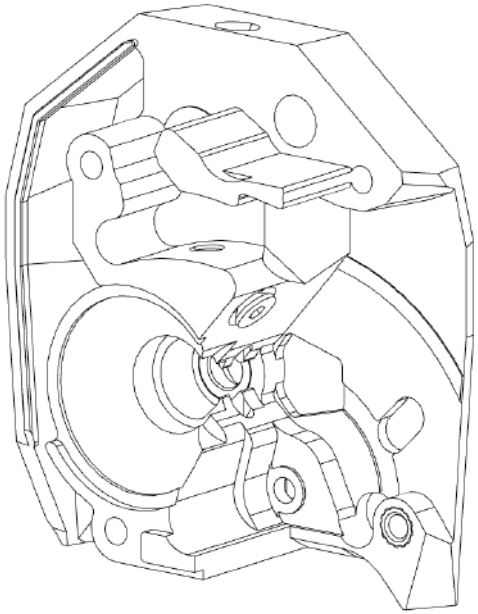
A lubrication film is required to ensure smooth operation and longevity.
Refer to the Voron sourcing guide for lubricant options - look for a “light grease”



MR85 Bearing

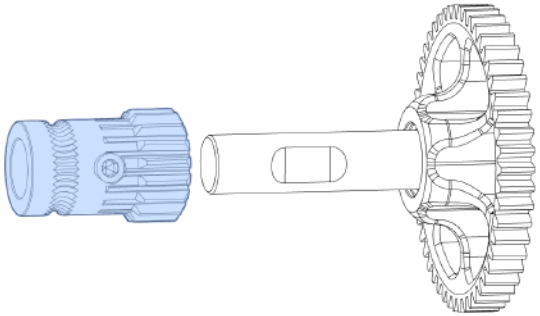


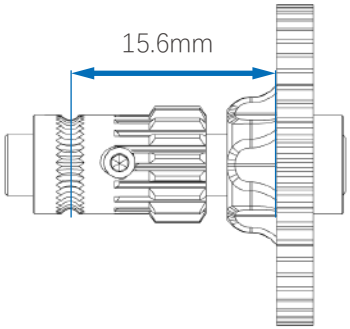
M3×6 FHCS



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.



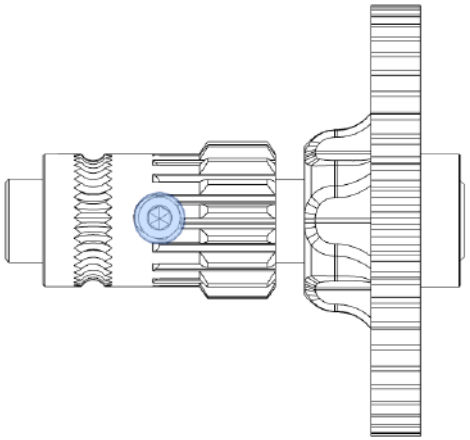


INITIAL POSITION

The final position is set later.

DRIVE GEAR

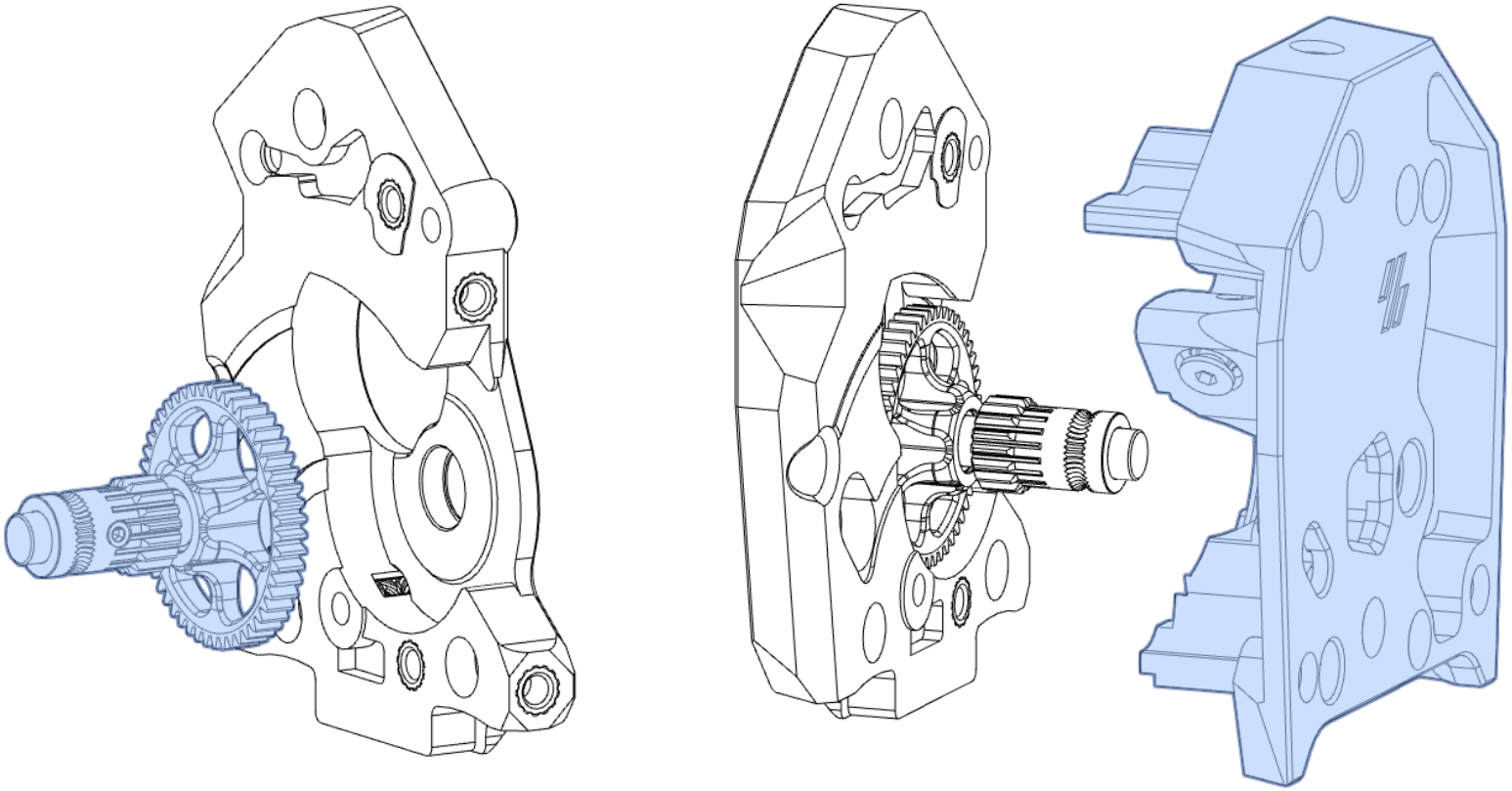
Make sure the set screw in the filament drive gear is seated against the notch in the shaft. Carefully tighten the set screw, the head is easy to strip

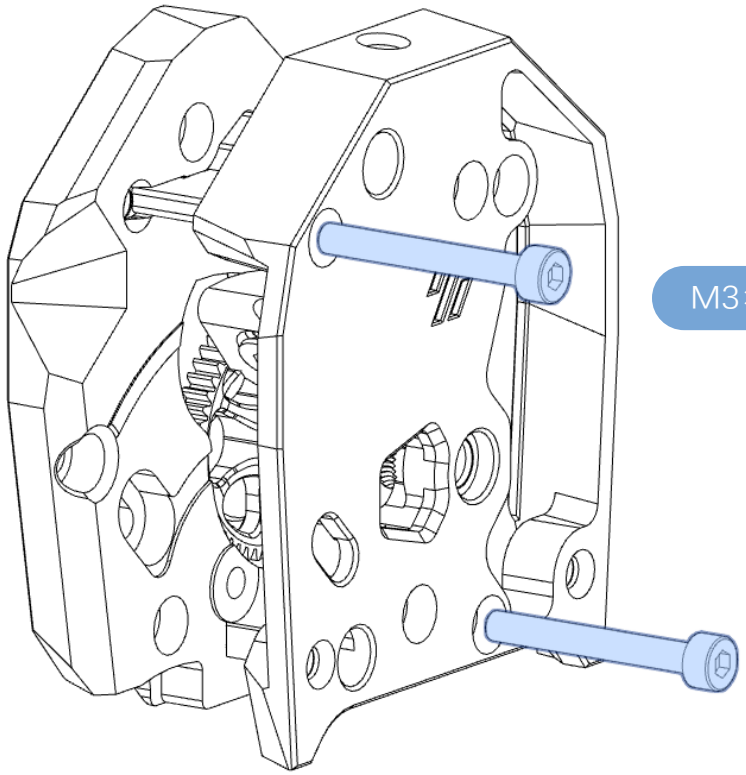


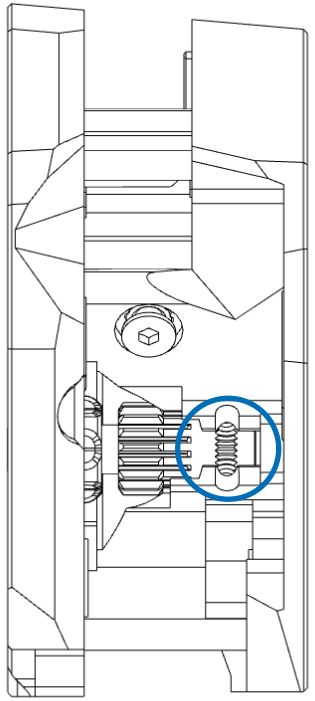
THREAD LOCKER

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.

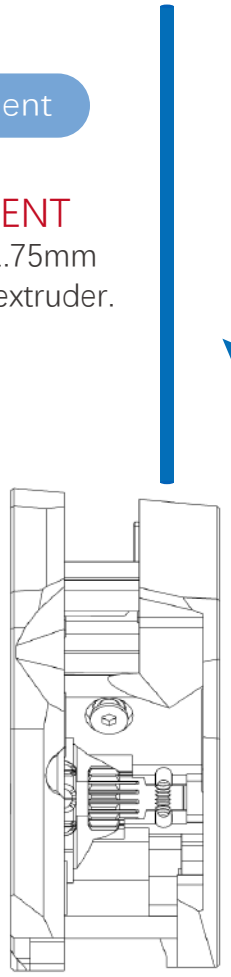
INITIAL ALIGNMENT CHECK

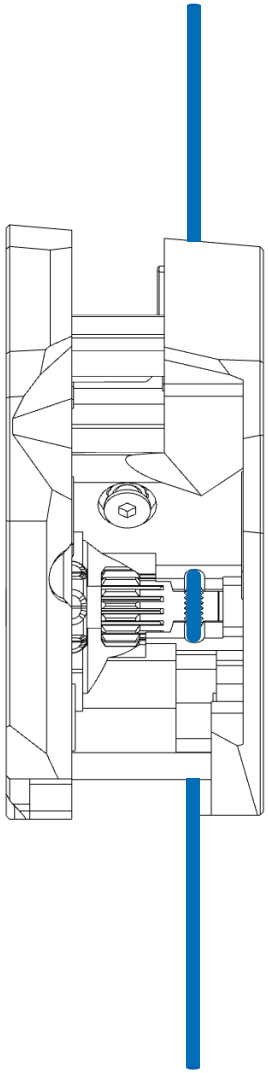
Check if the filament path aligns with the toothed section of the drive gear.

Filament

INSERT FILAMENT

Insert a piece of 1.75mm filament into the extruder.

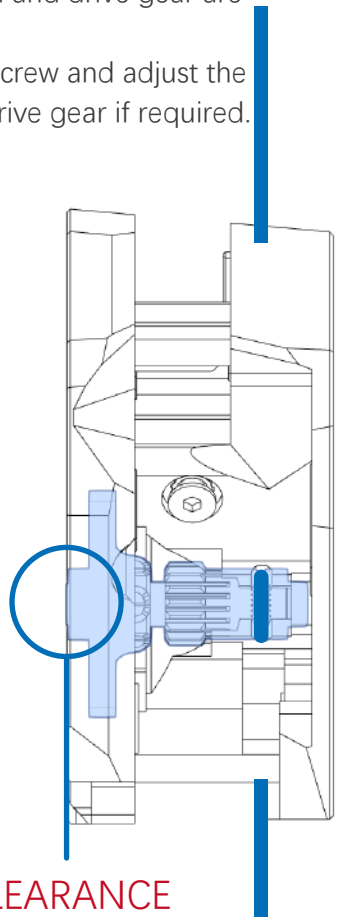




CHECK ALIGNMENT

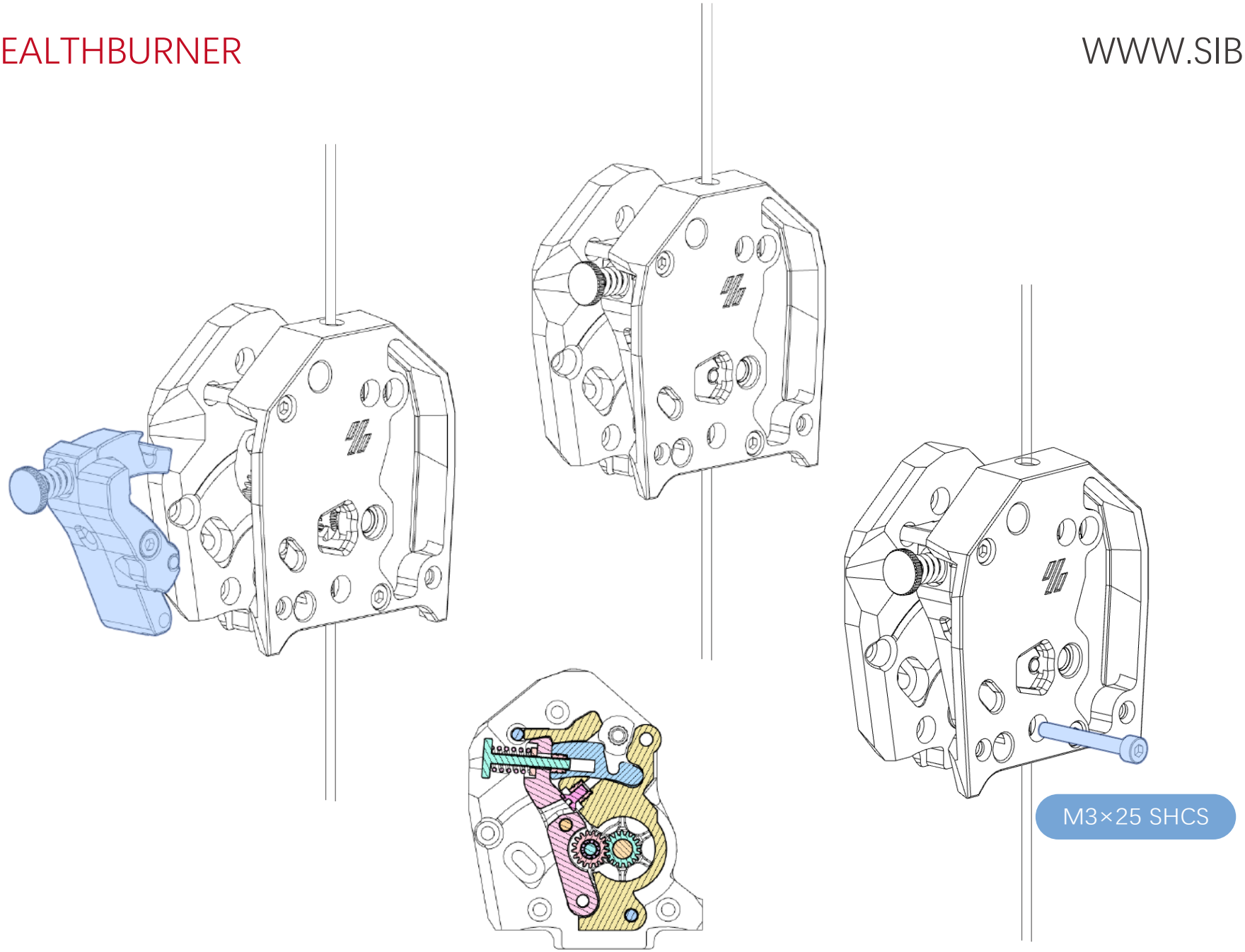
With the filament inserted, verify if the filament path and drive gear are aligned.

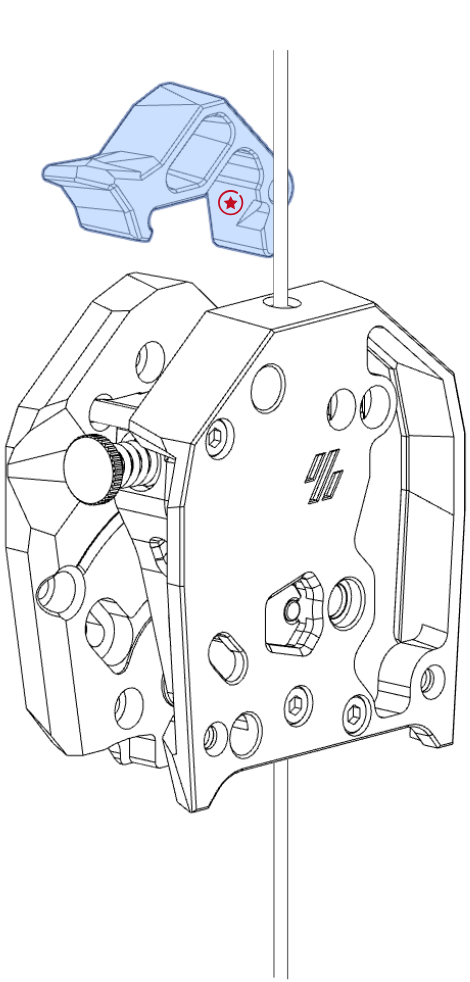
Loosen the set screw and adjust the position of the drive gear if required.

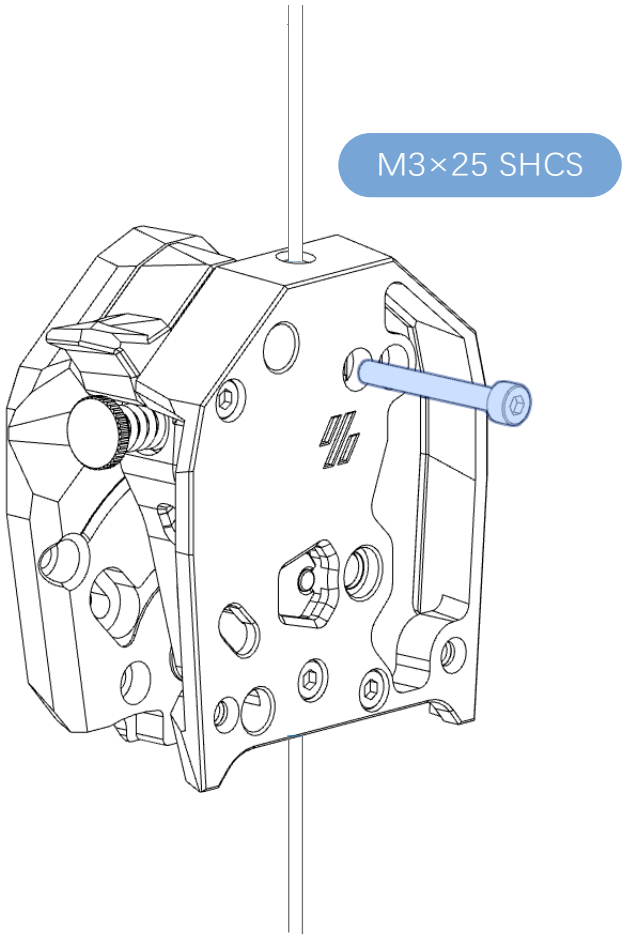


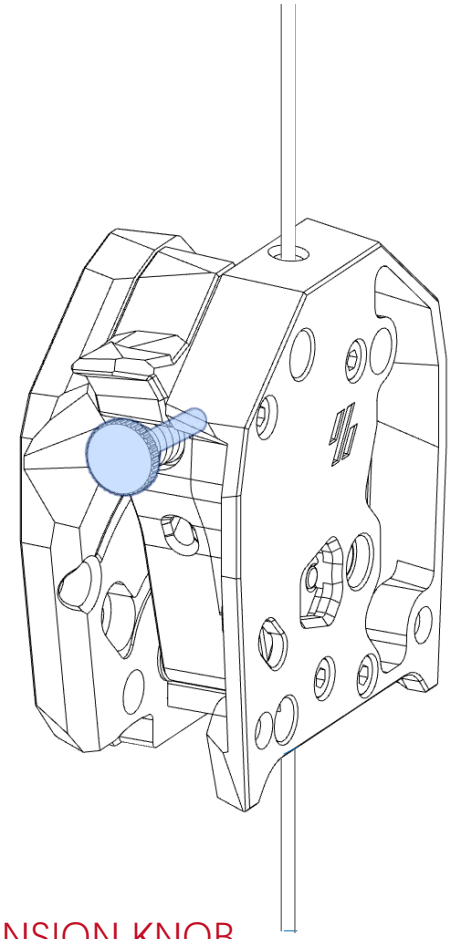
CHECK FOR CLEARANCE

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.


M3×25 SHCS

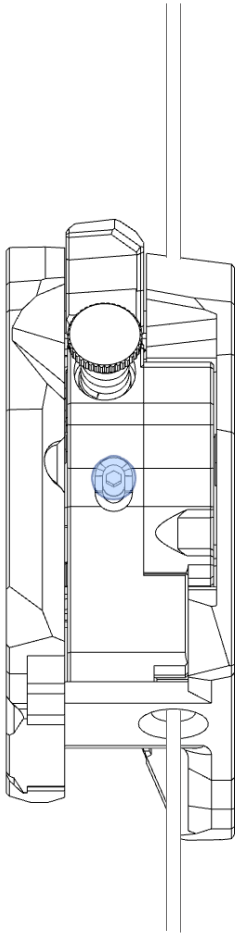



M3×25 SHCS



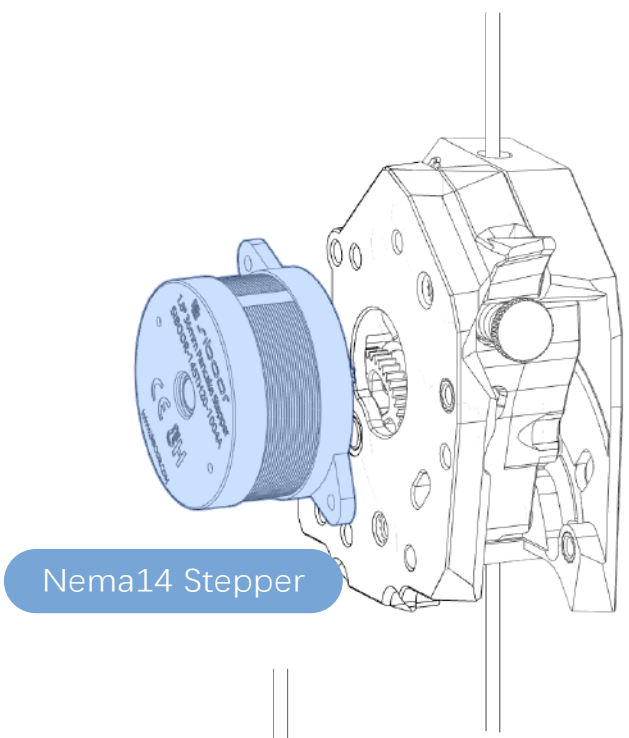
TENSION KNOB

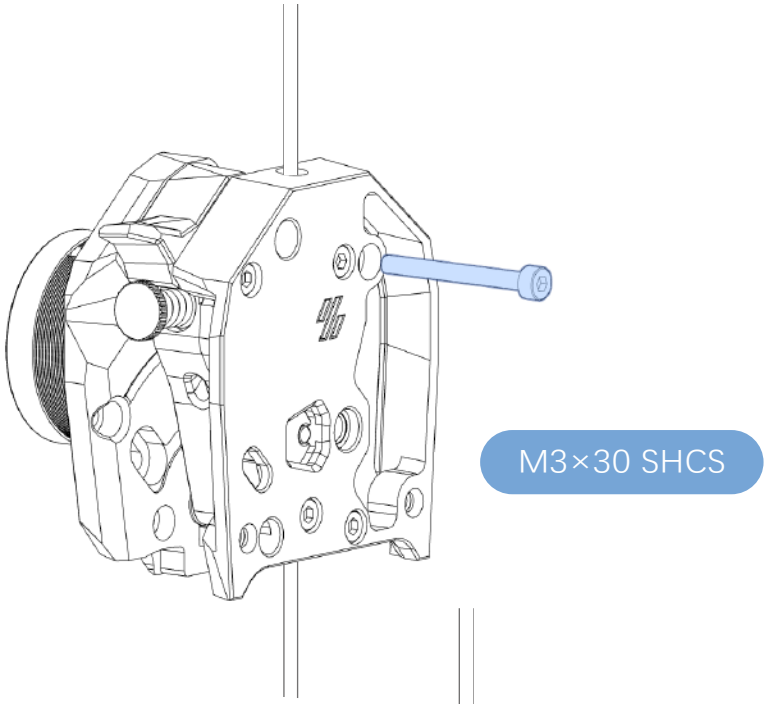
Turning the thumb screw clockwise will increase the tension and grip on the filament. Too much tension will result in print issues.

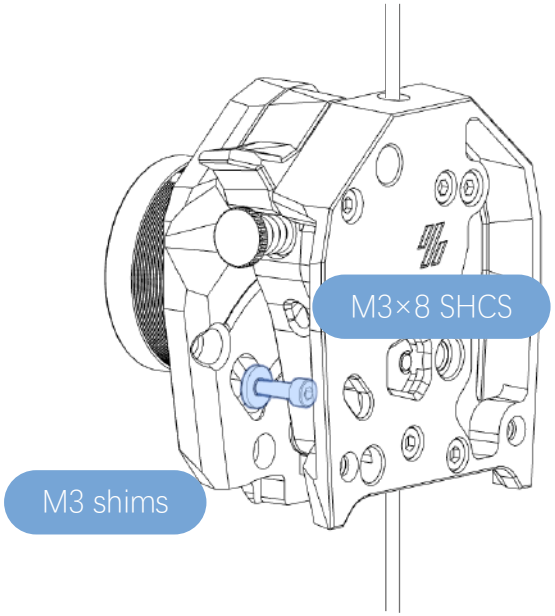


ANTI SQUISH THINGYMAJIG

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.

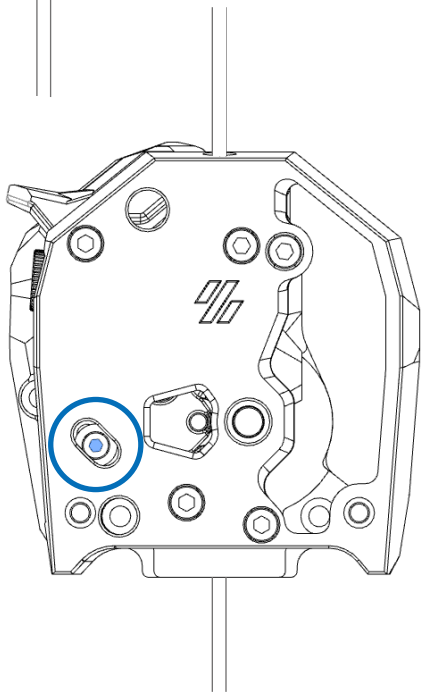






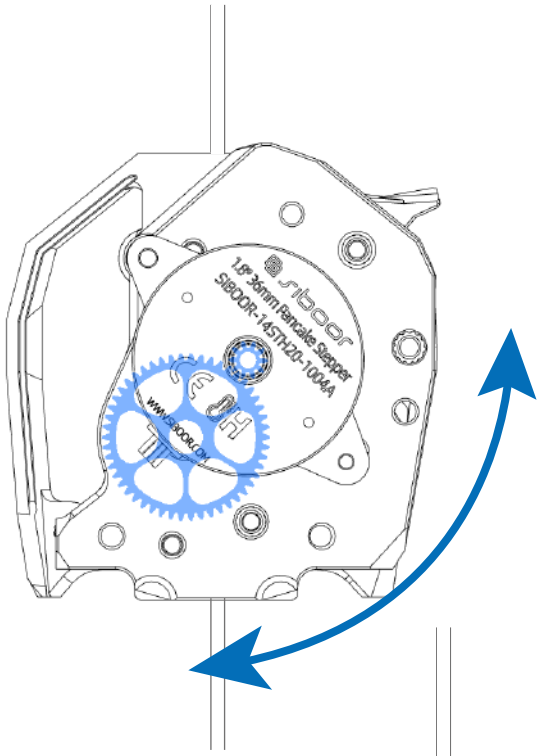
DON'T TIGHTEN

The motor position will be adjusted in the next steps. Don't fully tighten just yet.



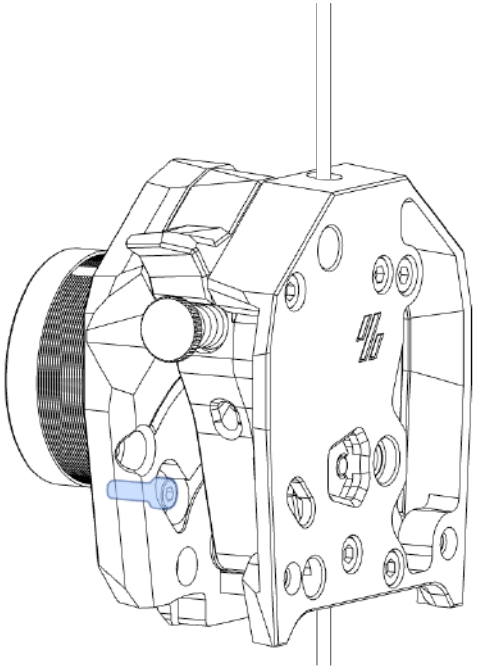
ACCESS HOLE

The second motor bolt can be accessed from the front of the extruder.



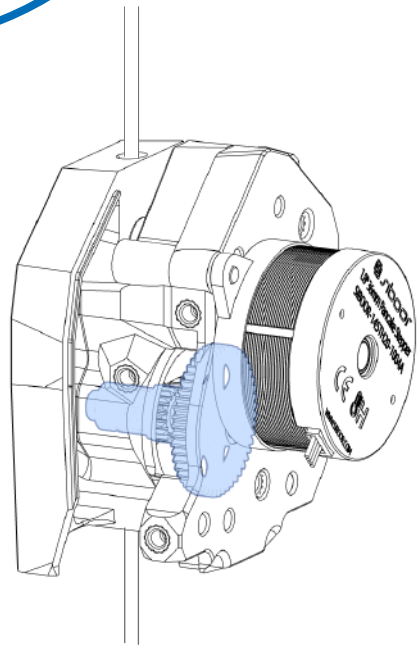
SET GEAR MESHING

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.



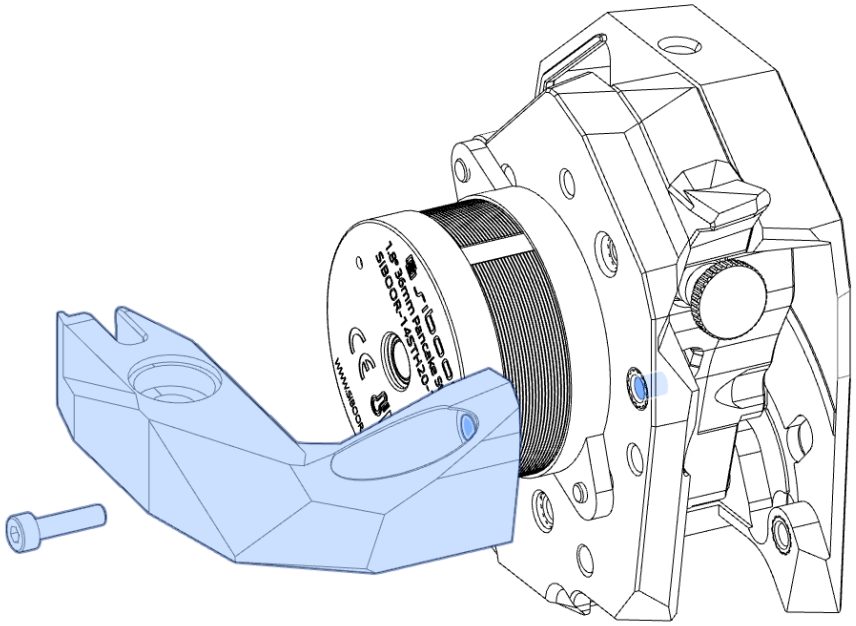
TIGHTEN WHEN DONE

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

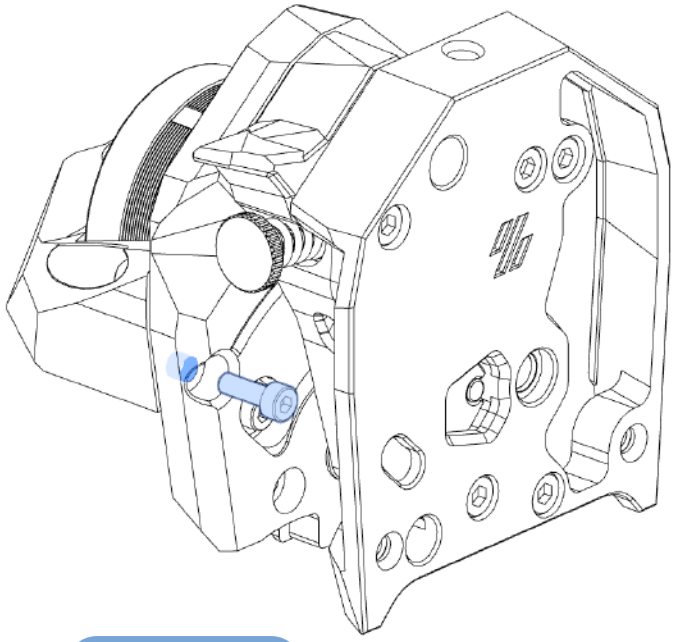


CHECK GEAR PLAY

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

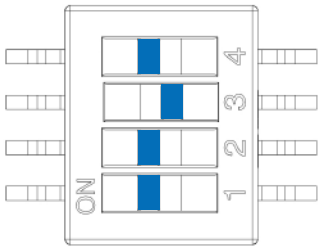


M3×8 SHCS

EBB SB2209 CAN (RP2040)

Setting Fan Output Voltage

Insert the jumper here to set the fan output voltage to 24V.

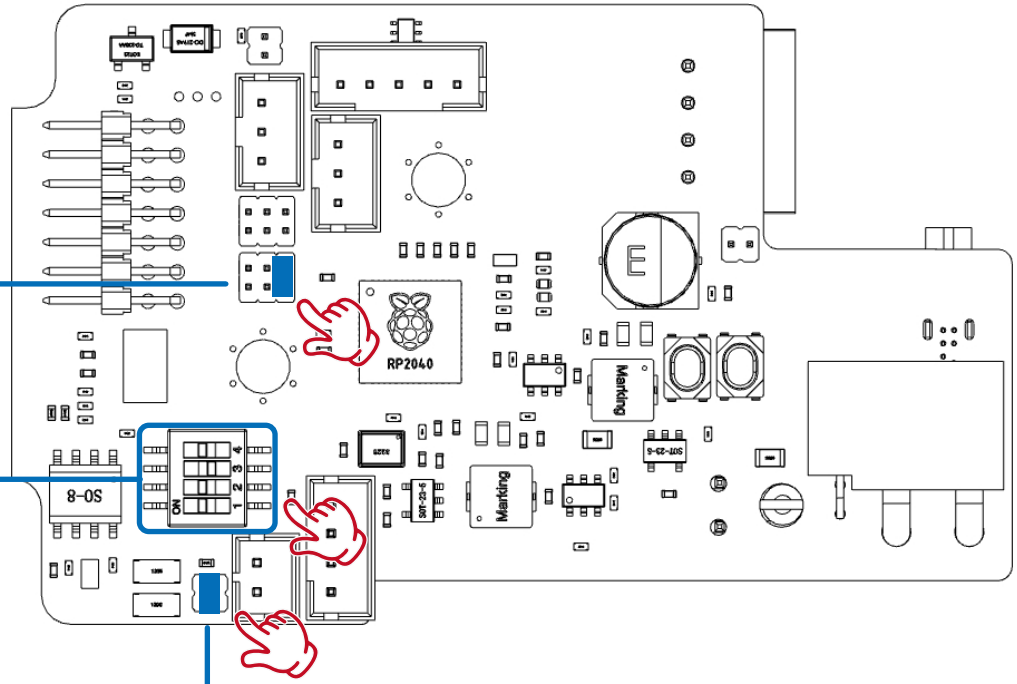


Checking the DIP Switches

Verify that the dip switches are set as shown in the image. This is the configuration for the 2-wire PT1000.

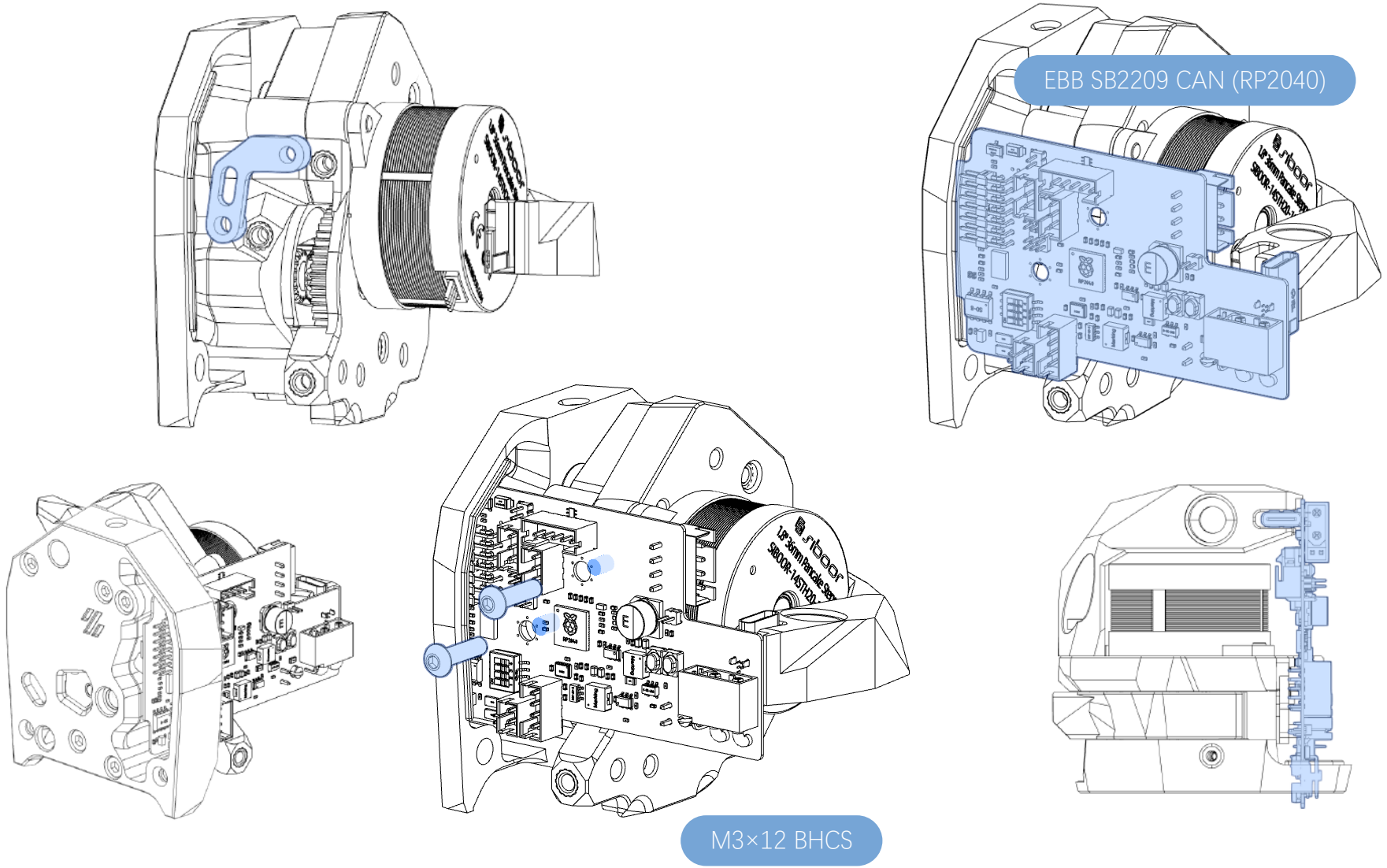
CAN-120R Jumper

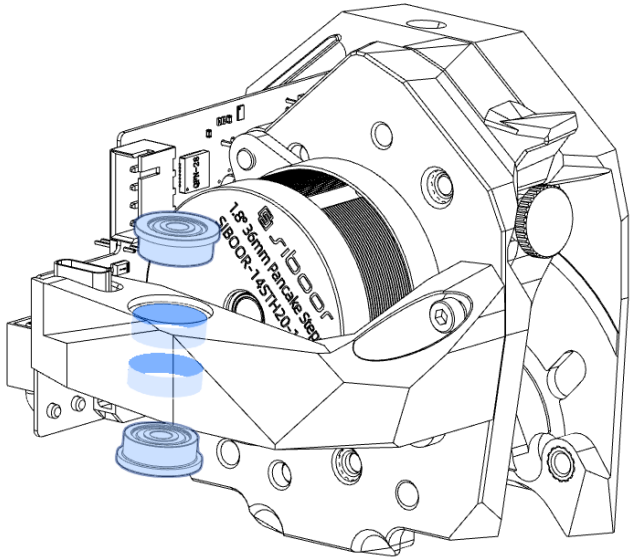
Insert the jumper here for the CAN-120R to enable proper CAN communication.



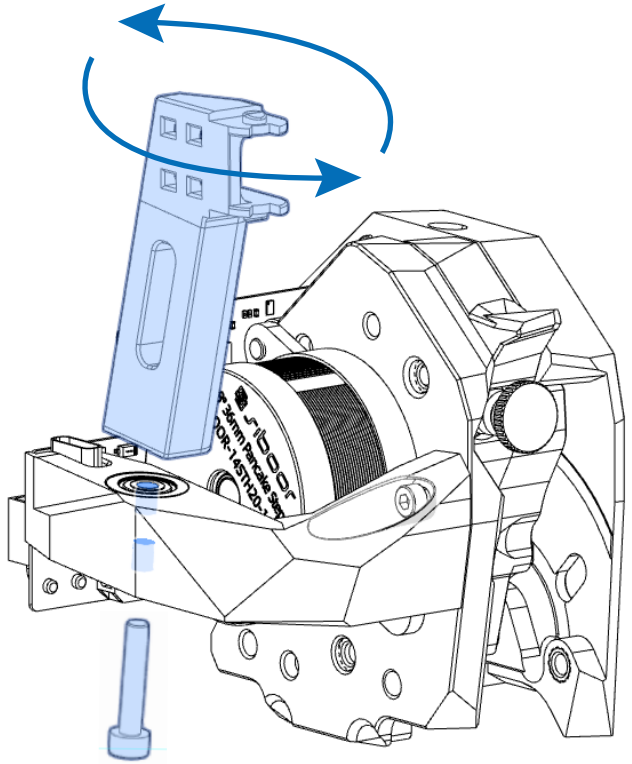
Where do I find the jumpers

The jumpers aren't packaged with the can board,
but are in the same compartment where the can board was shipped in.


EBB SB2209 CAN (RP2040)
M3×12 BHCS



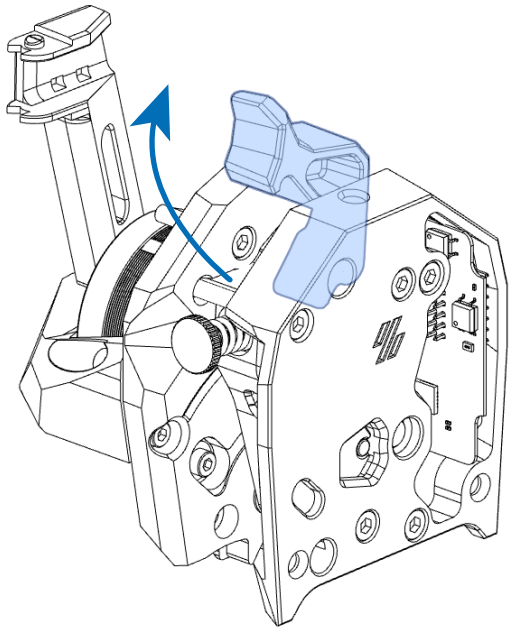
F623 Bearing



M3×20 SHCS

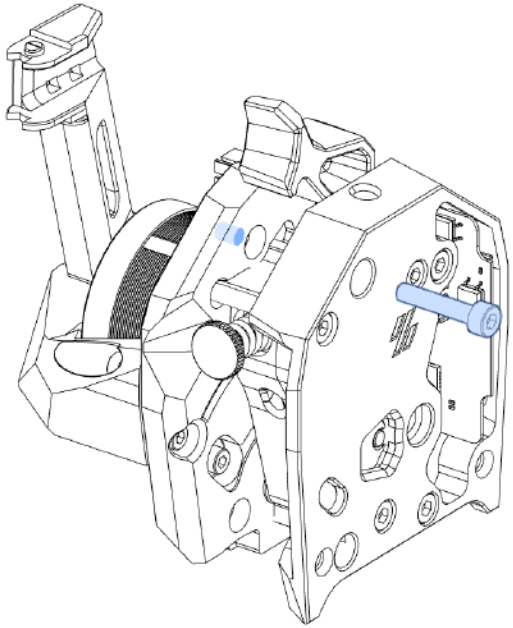
DON'T OVERTIGHTEN

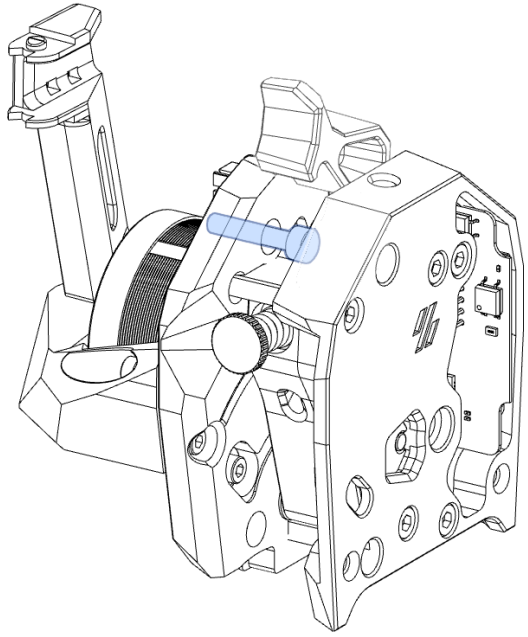
The drag chain bracket should rotate smoothly 360°.



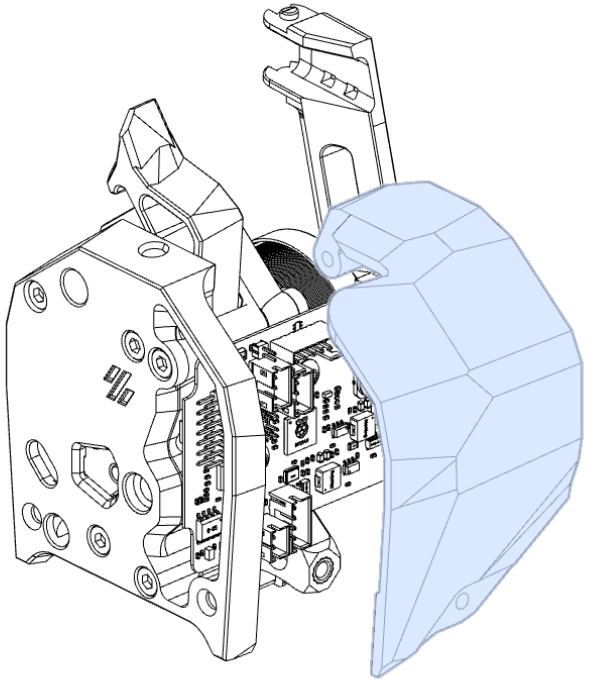
OPEN LATCH

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



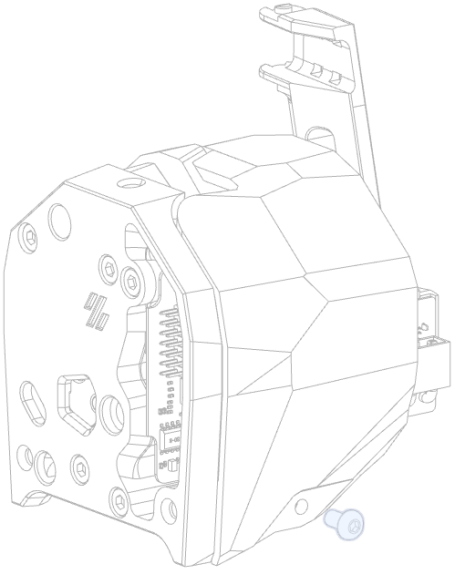


M3×16 SHCS

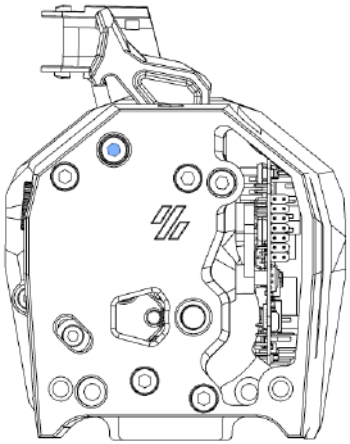


DON'T OVER-TIGHTEN

The bolt is threaded directly into plastic.



M3×6 BHCS

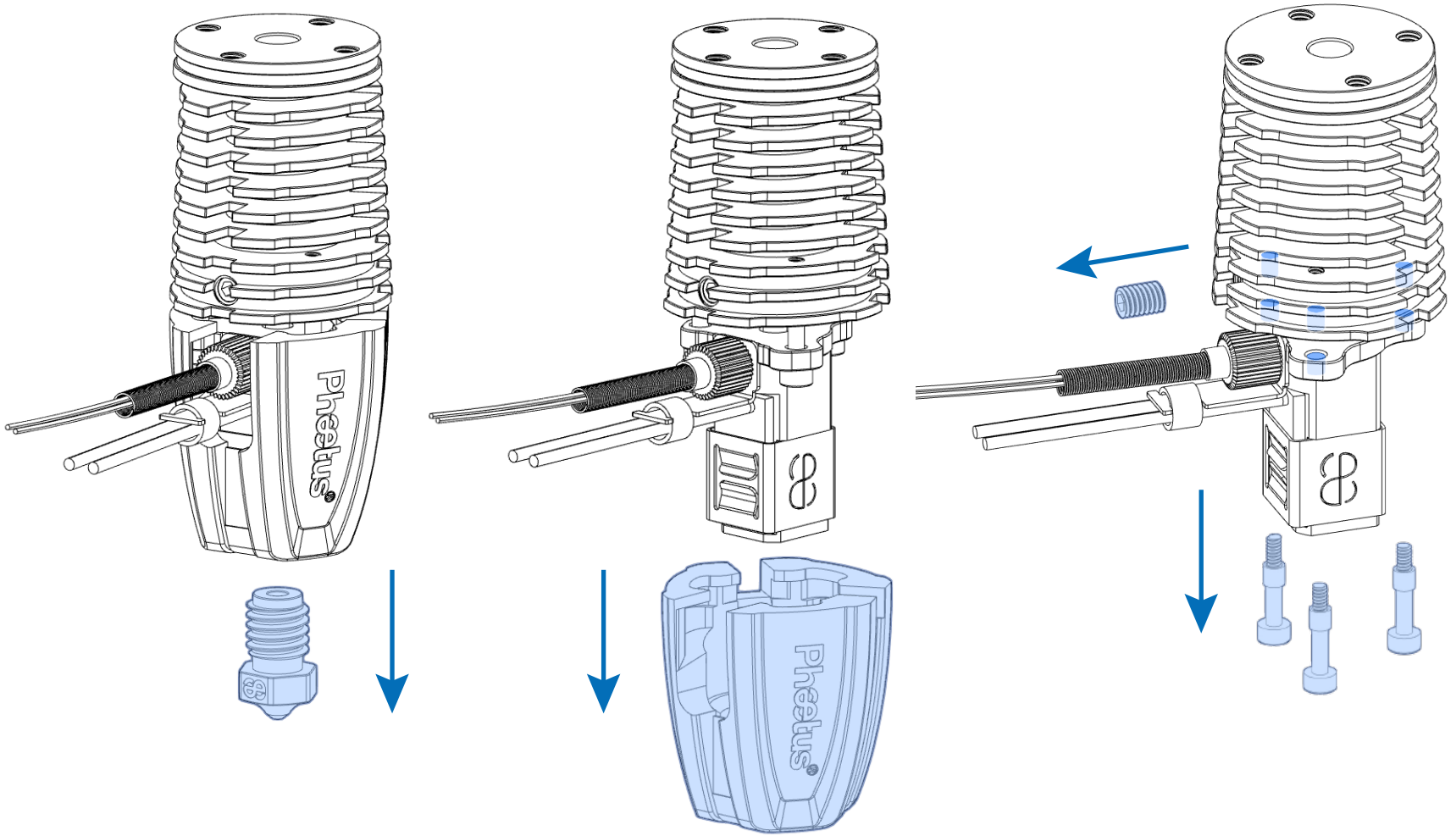


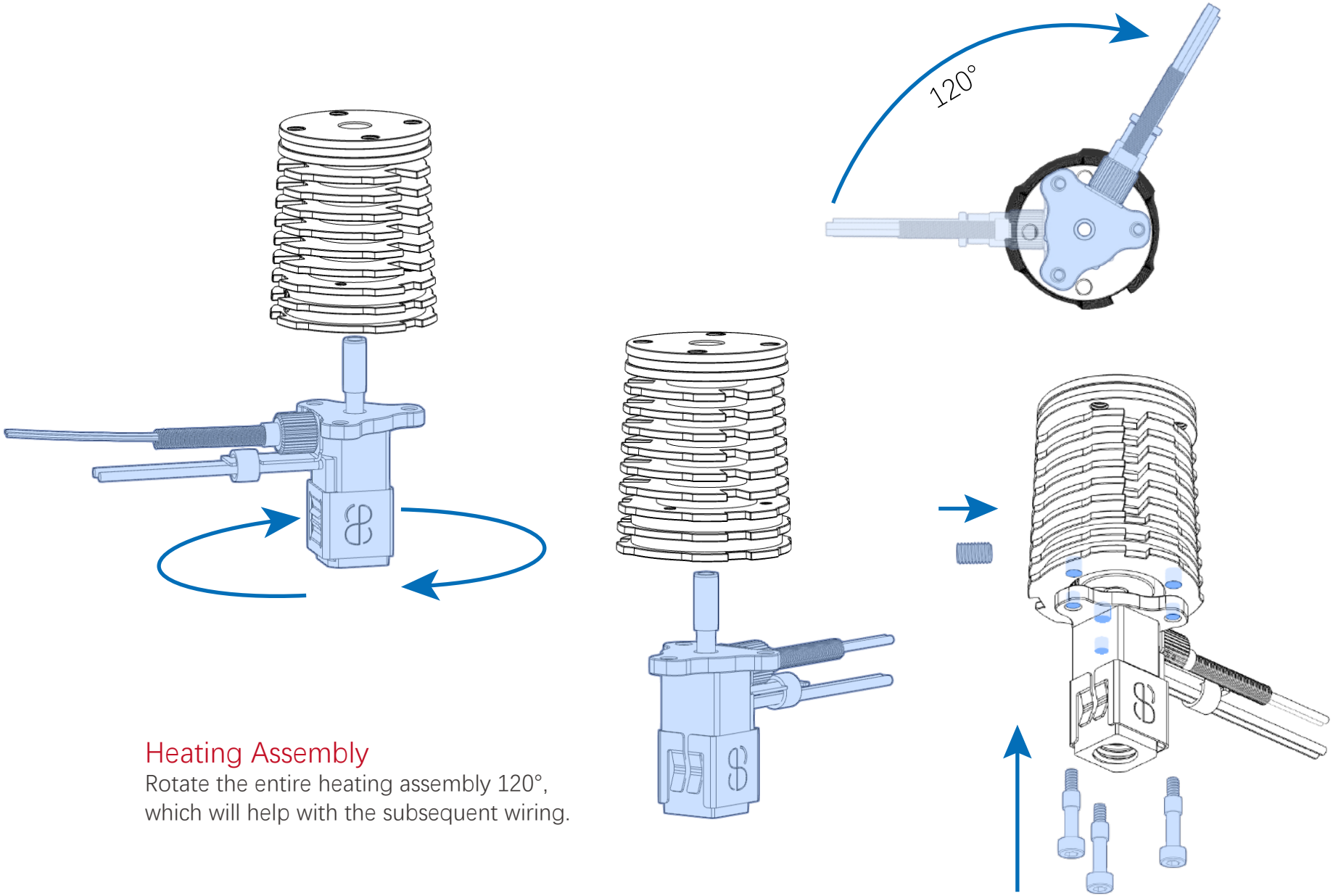
ACCESS HOLE

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

CABLE COVER

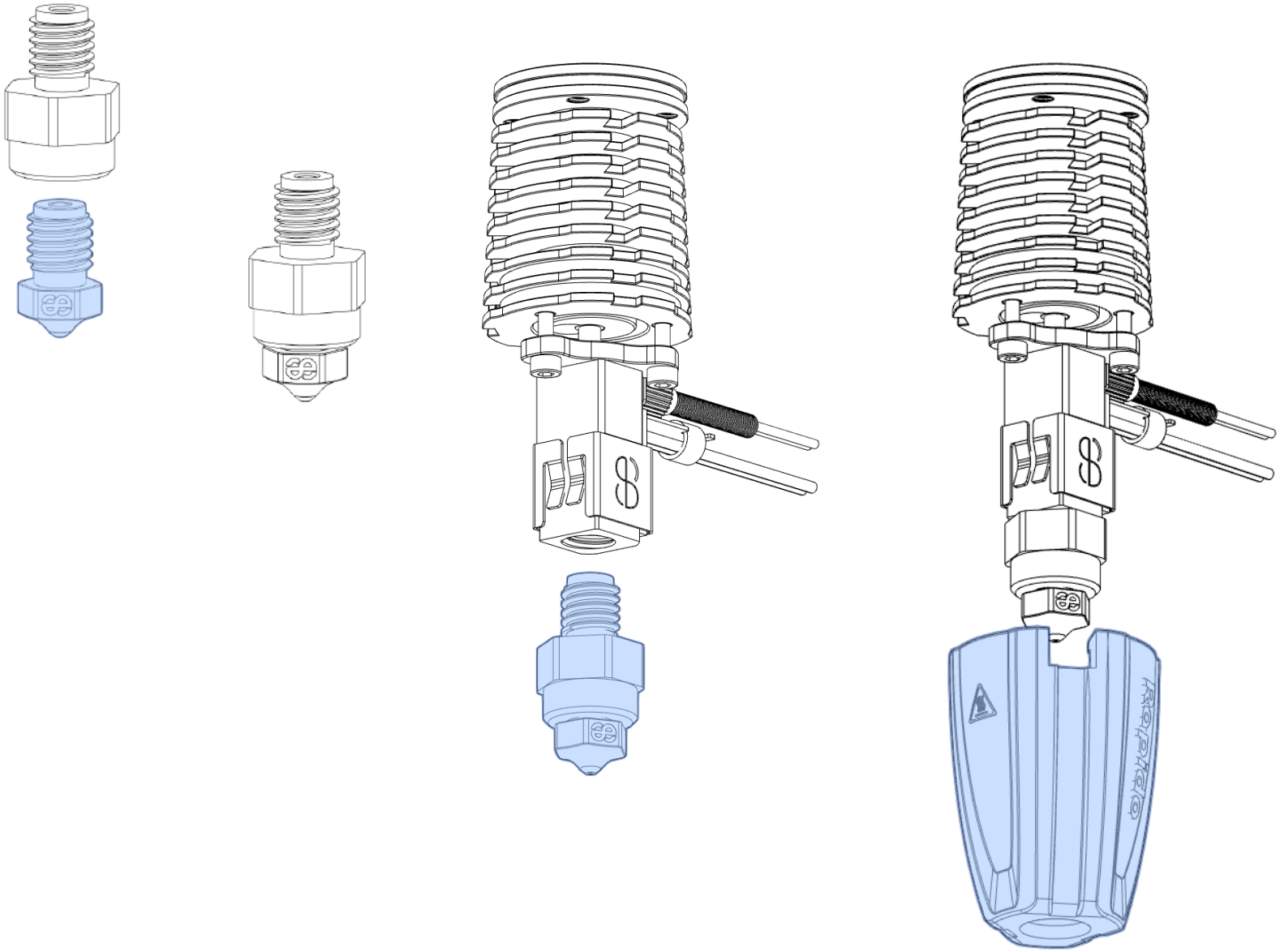
The cable cover can be secured using M3×6 BHCS screws, but not now, as we still need to do the wiring.

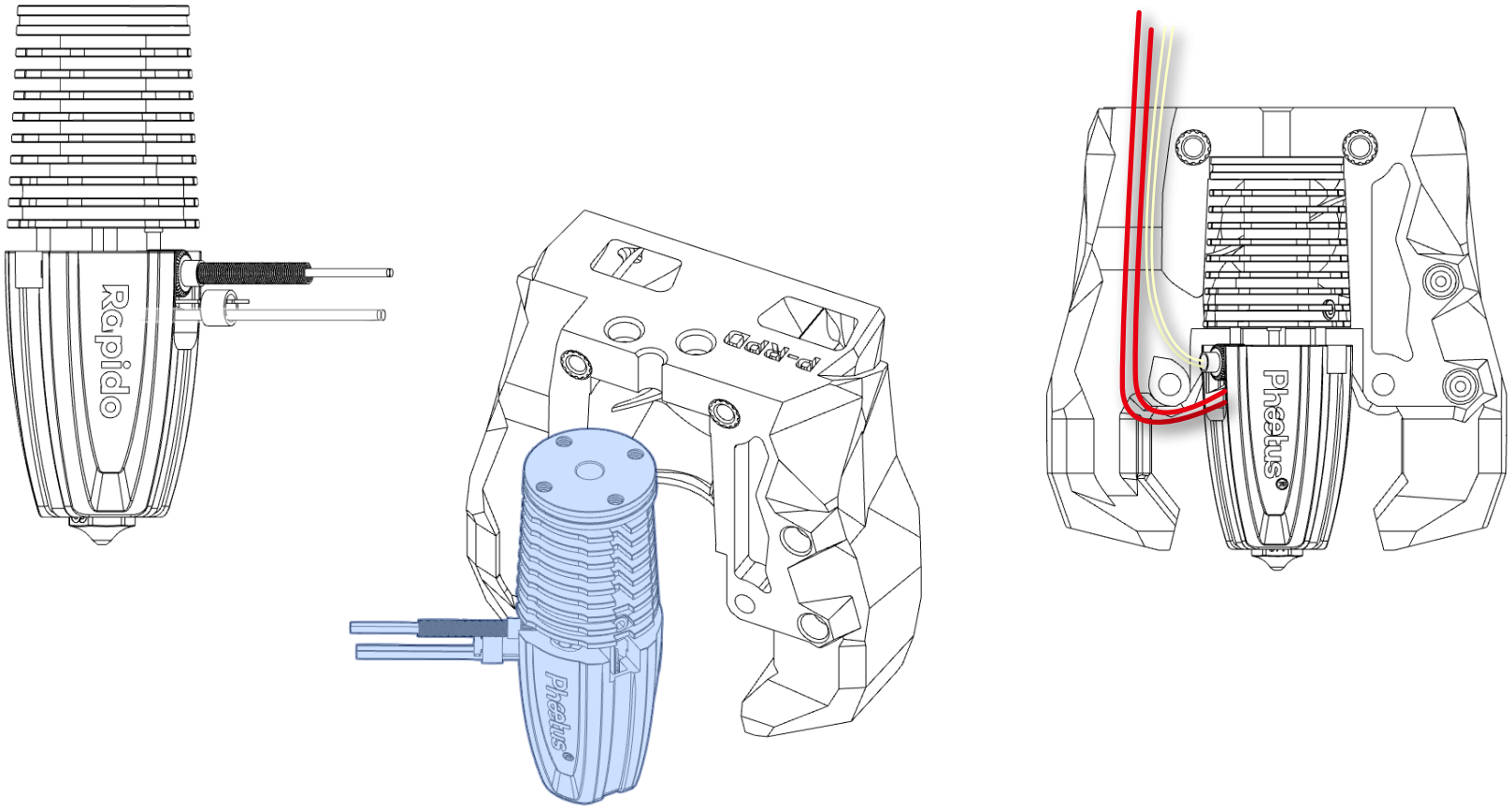

Phaetus
Phaetus

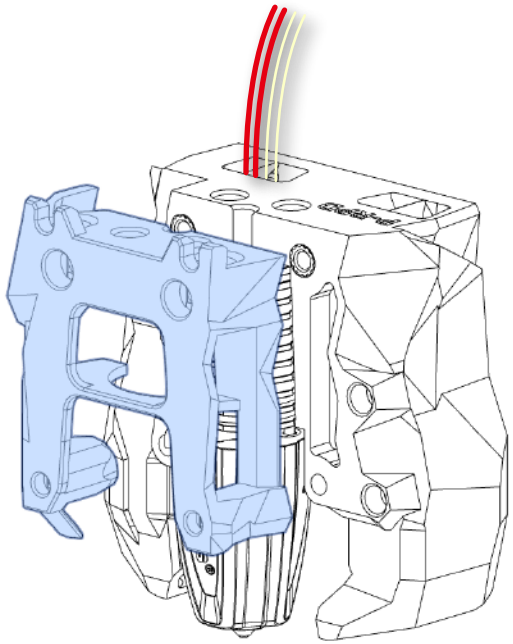


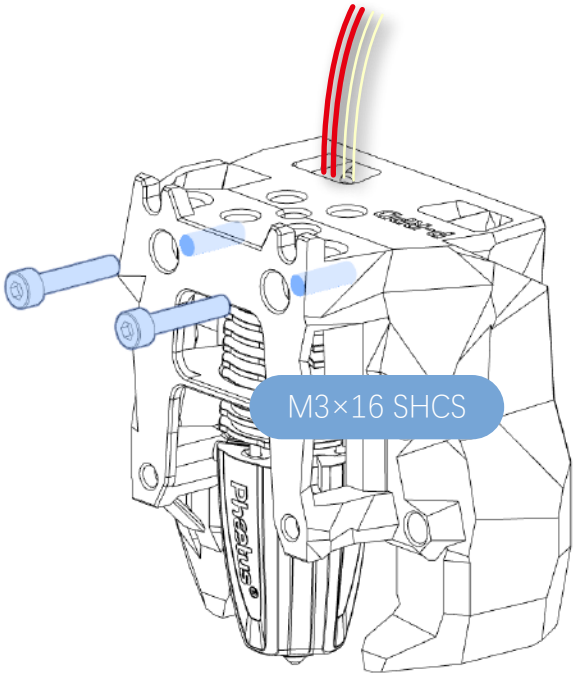
Heating Assembly

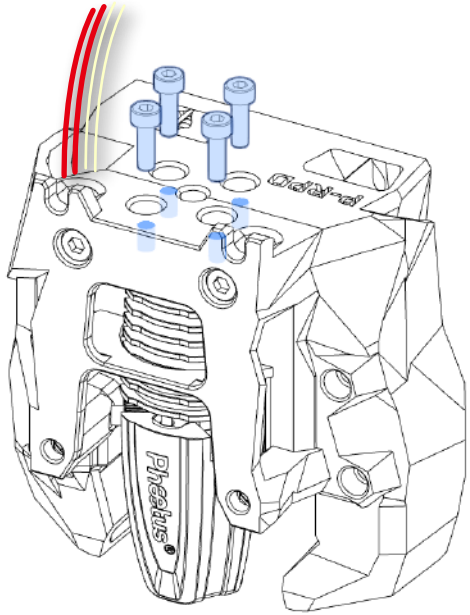
Rotate the entire heating assembly 120°,
which will help with the subsequent wiring.




Rapido
Rapido
Phaetus
Phaetus

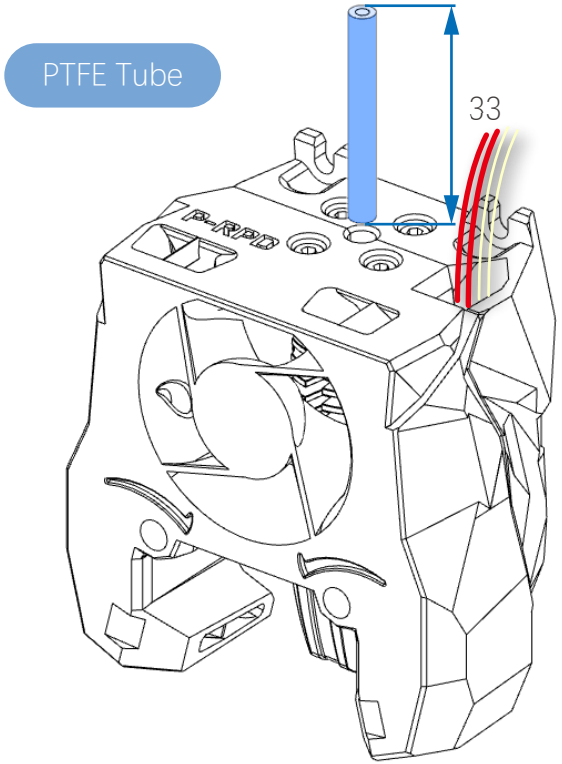



M3×16 SHCS


M2.5×8 SHCS

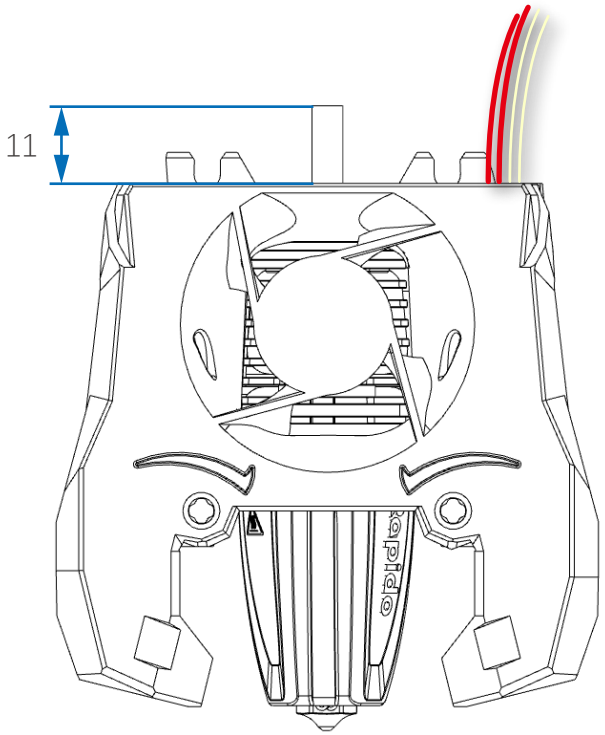
PTFE Tube

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



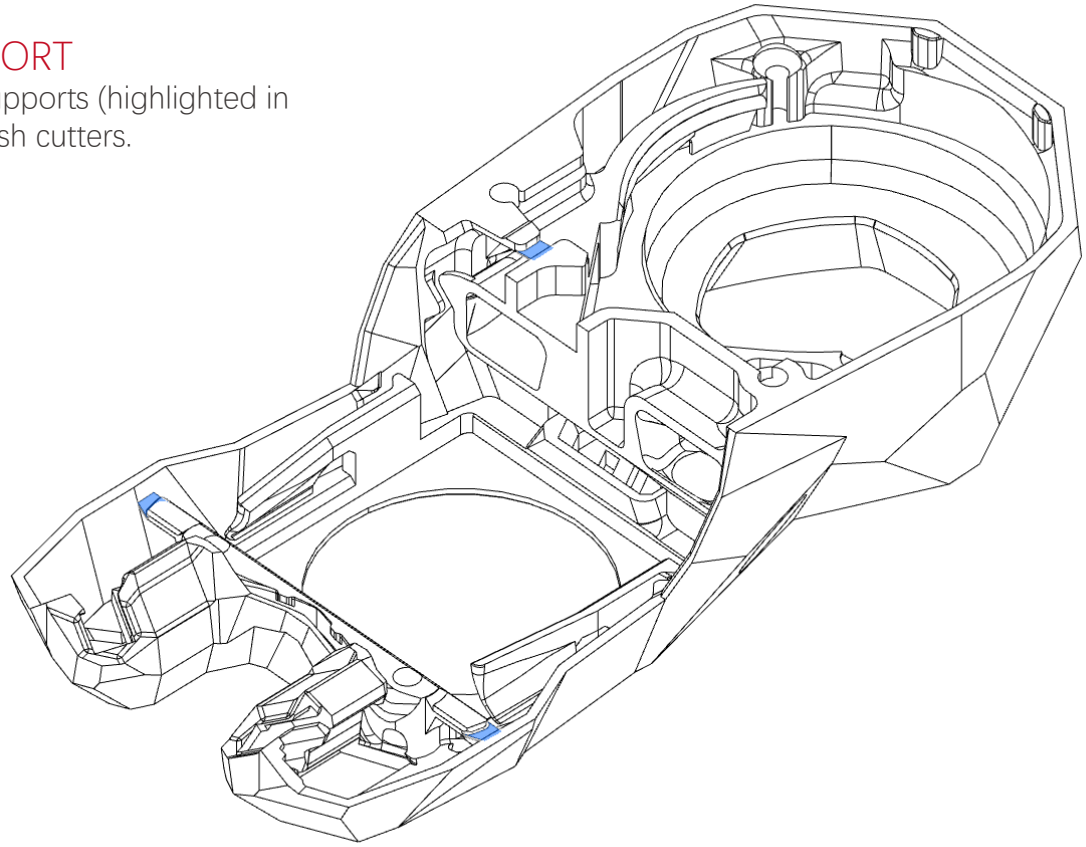
PTFE STICKOUT

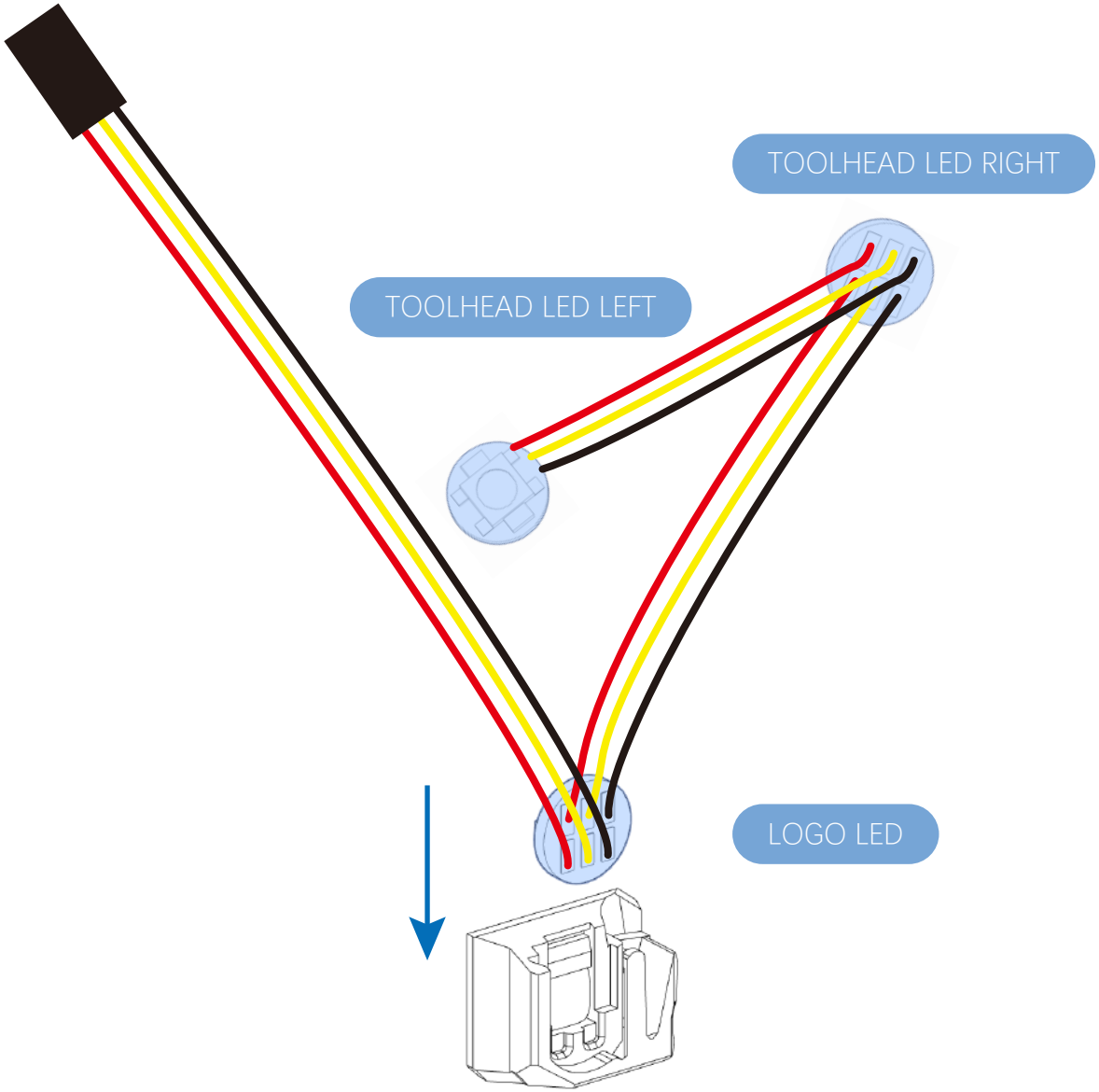
The PTFE tube should stick out 11mm above the surface of the printed part.

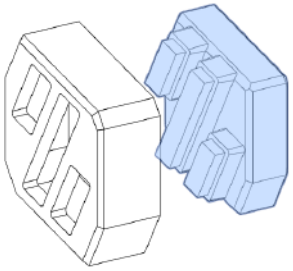


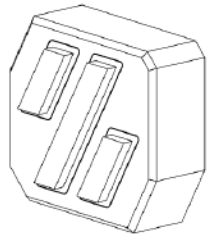
REMOVE SUPPORT

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

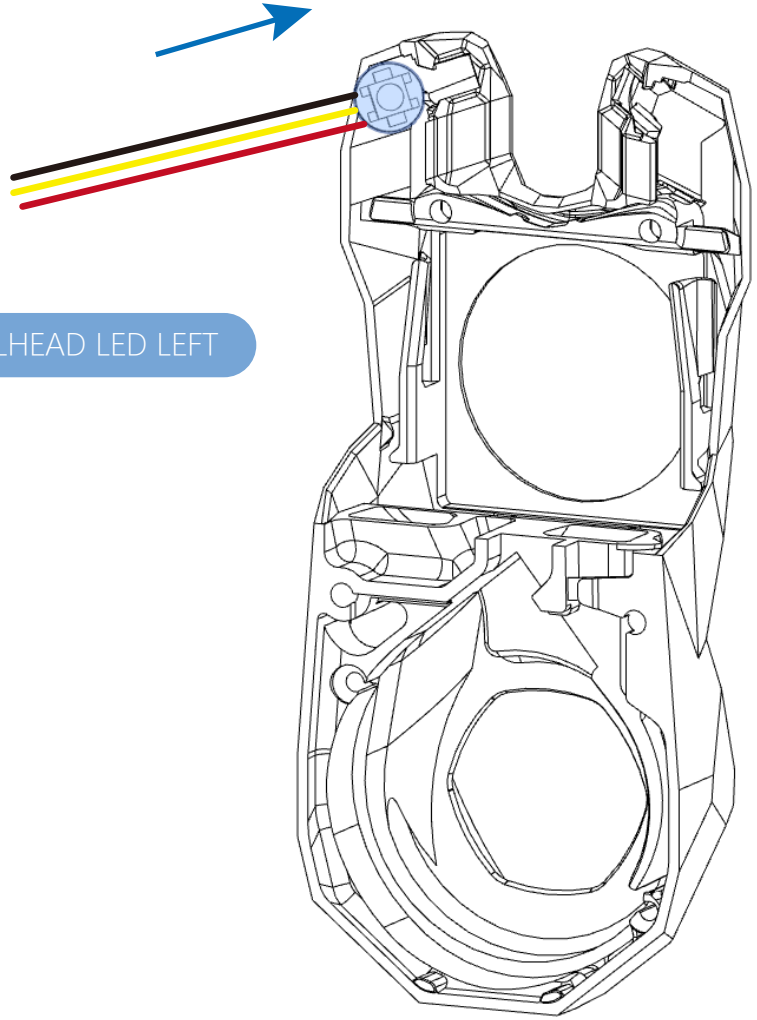


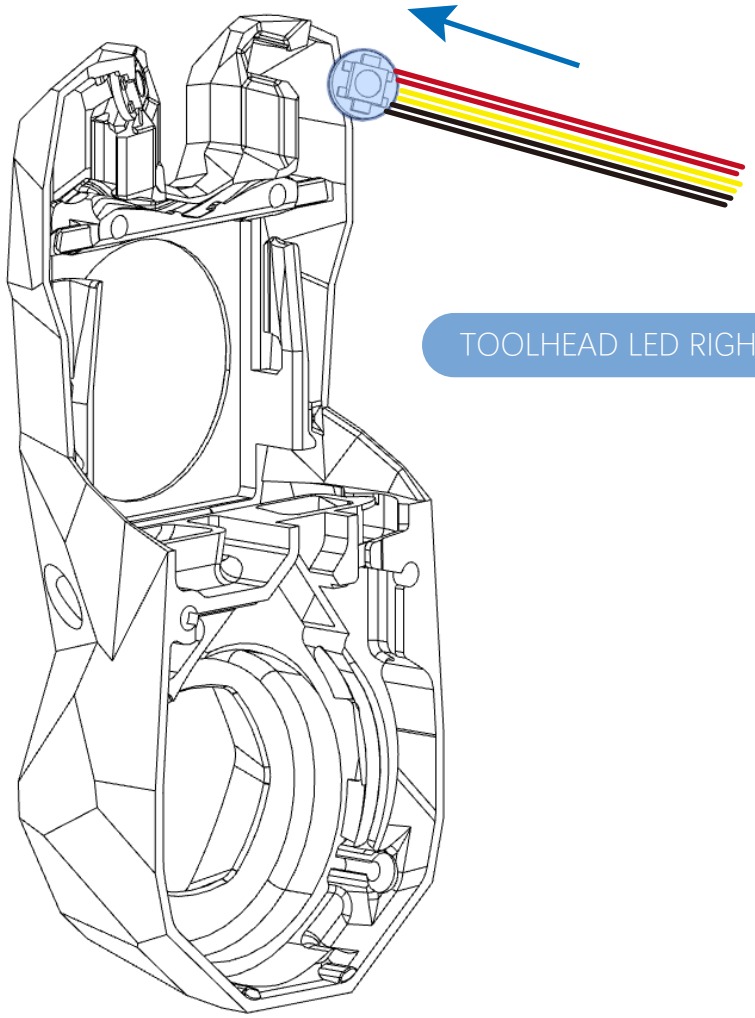

TOOLHEAD LED RIGHT
TOOLHEAD LED LEFT
LOGO LED



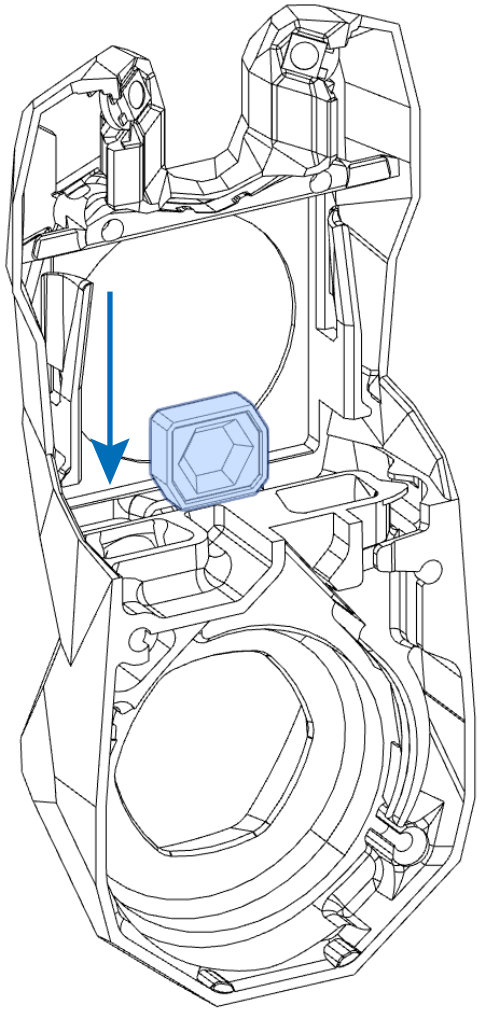


TOOLHEAD LED LEFT



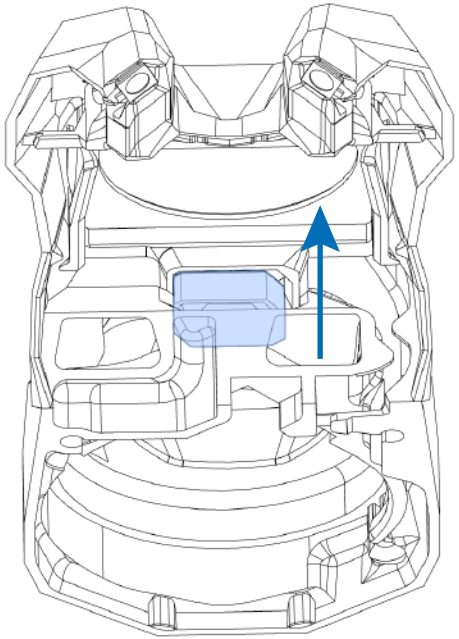


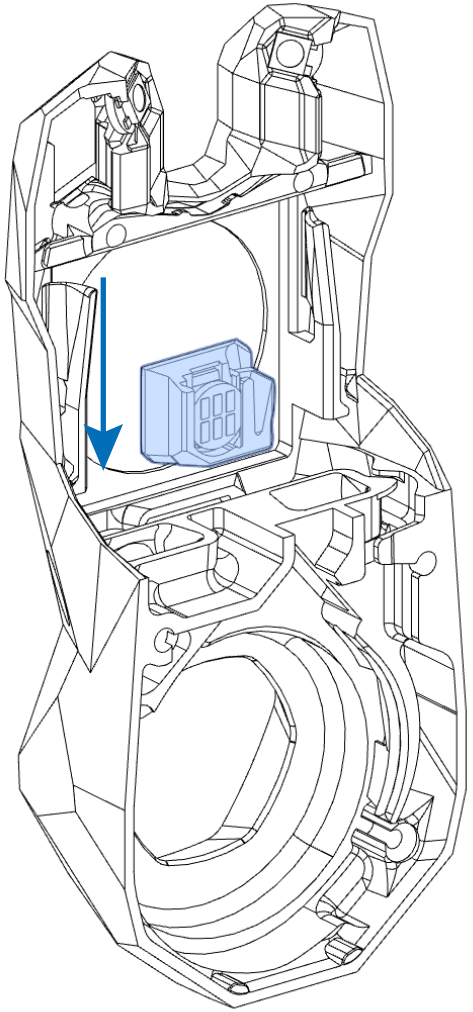
TOOLHEAD LED RIGHT



DIFFUSER INSERTION

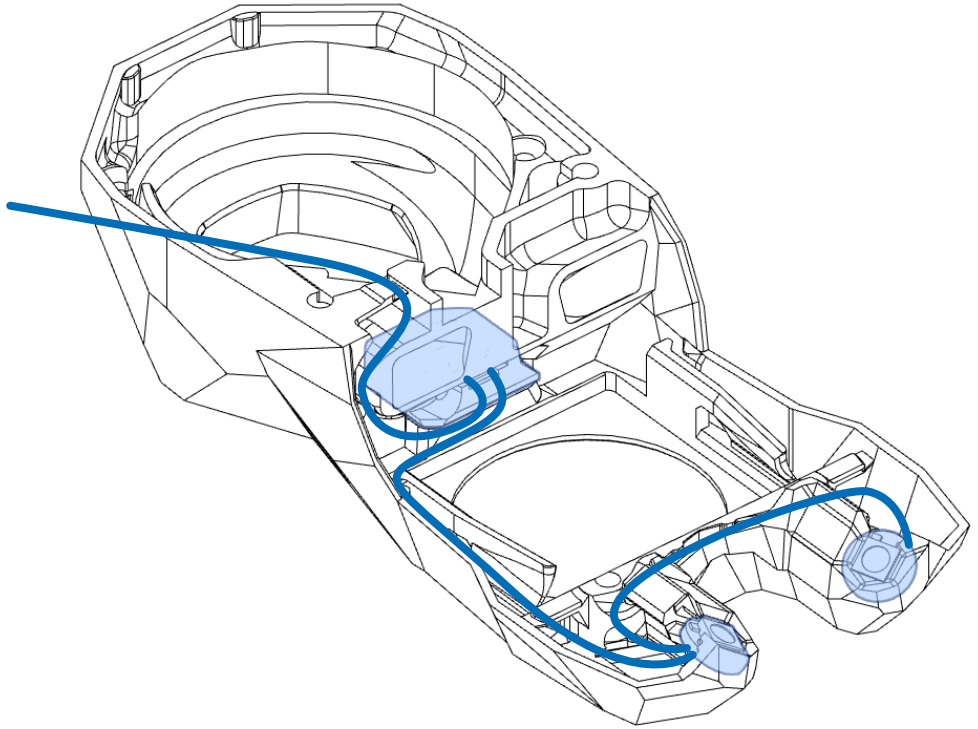
Insert the printed parts and push them towards the front.

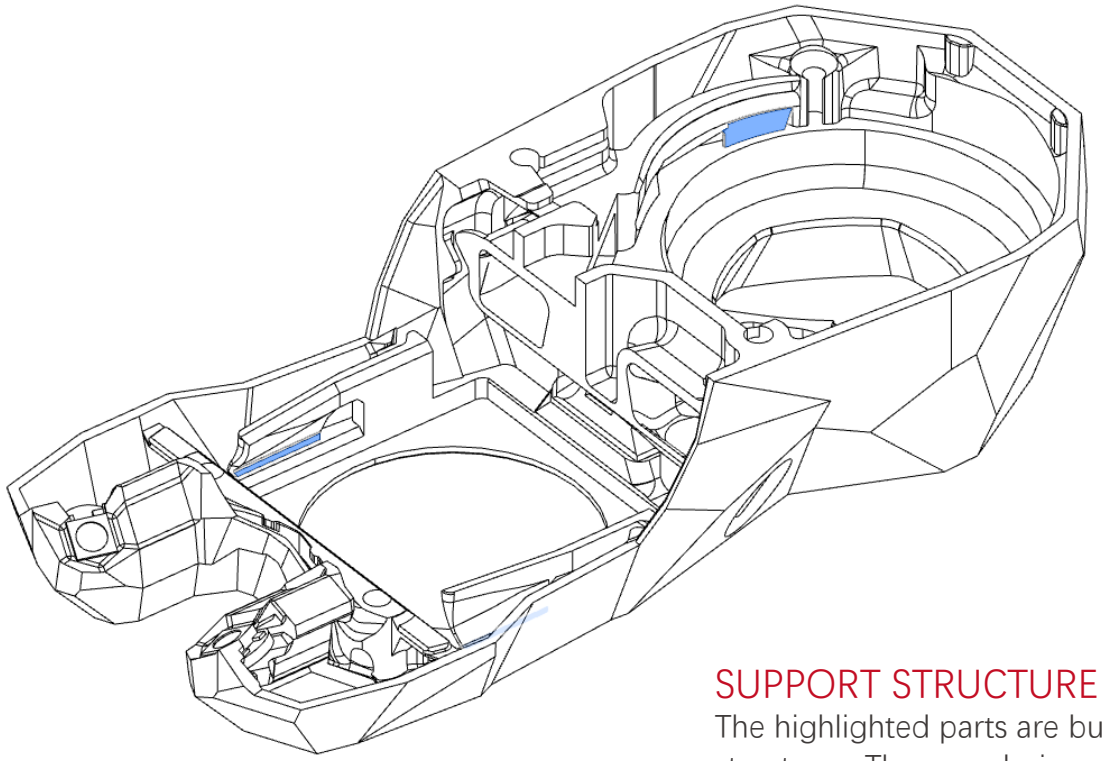




LED WIRE ROUTING

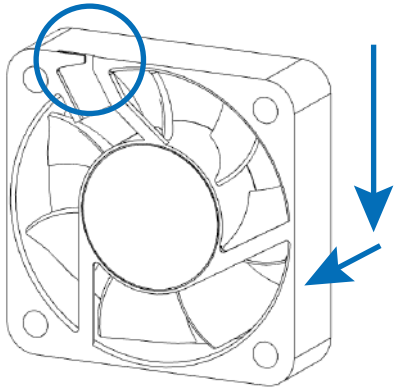
Route the LED wires as shown; wires exit on the right side.





SUPPORT STRUCTURE

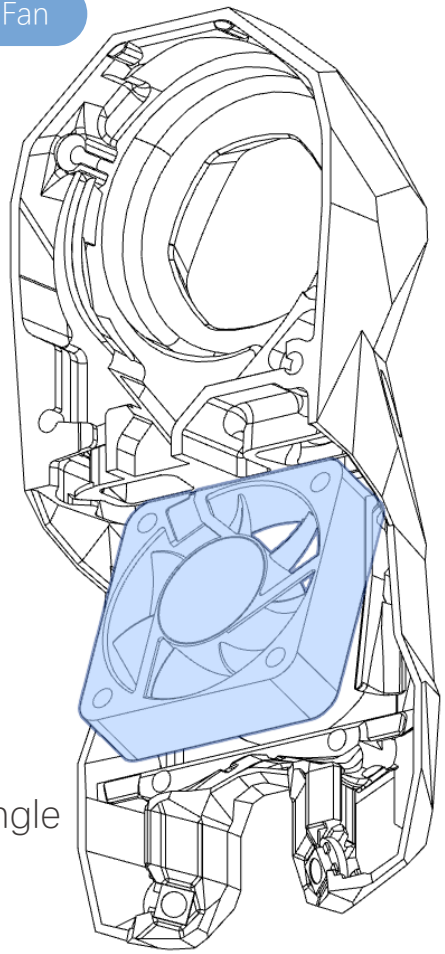
The highlighted parts are build-in support structures. They are designed to break during the fan installation.

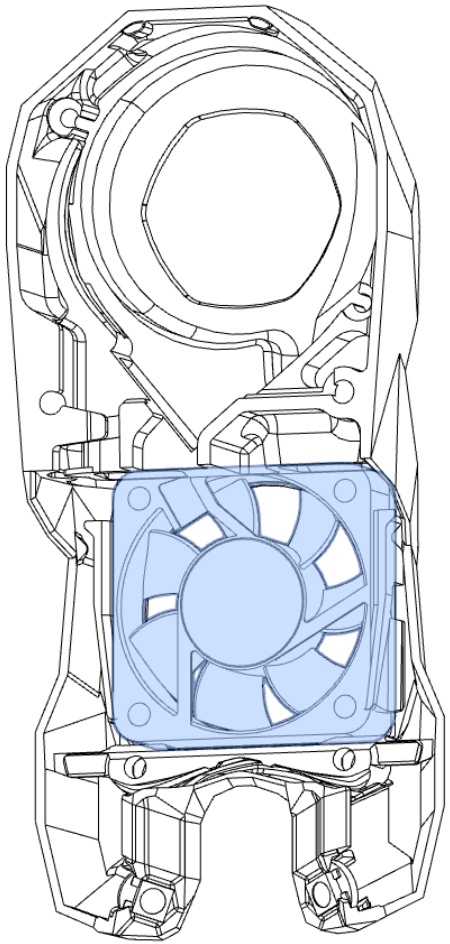


4010 Fan

FAN ORIENTATION

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



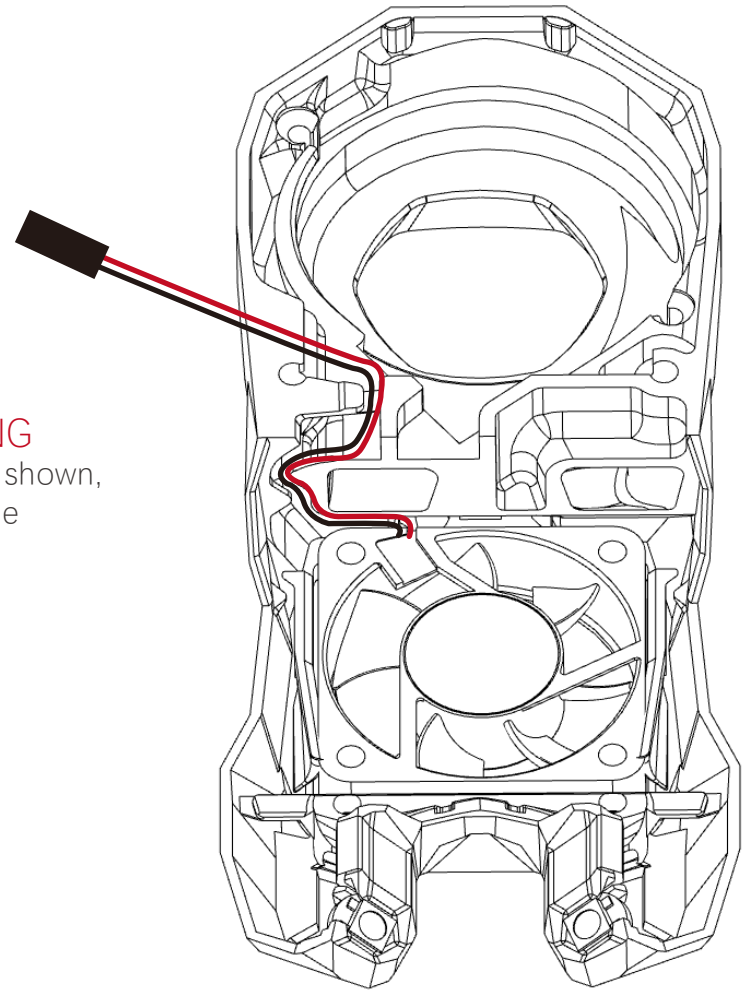


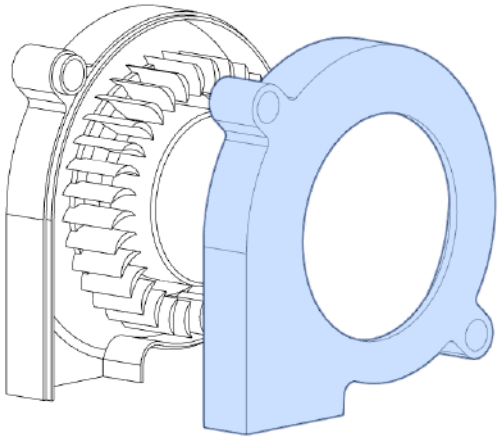
FAN INSERTION

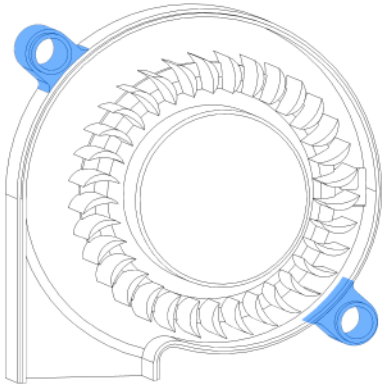
Insert the fan at a slight angle and clip it into place.
Mind the fan orientation.

FAN WIRE ROUTING

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



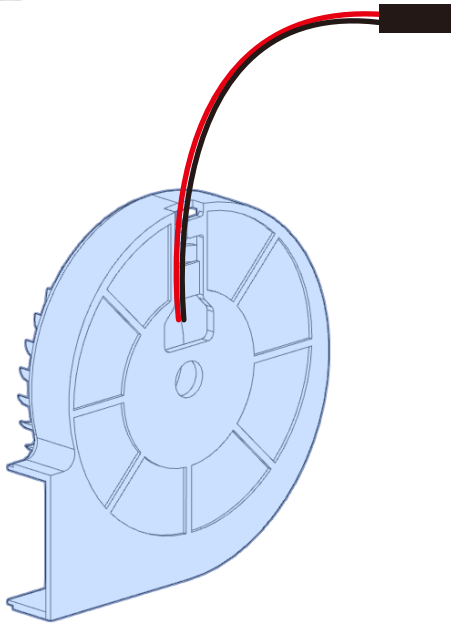


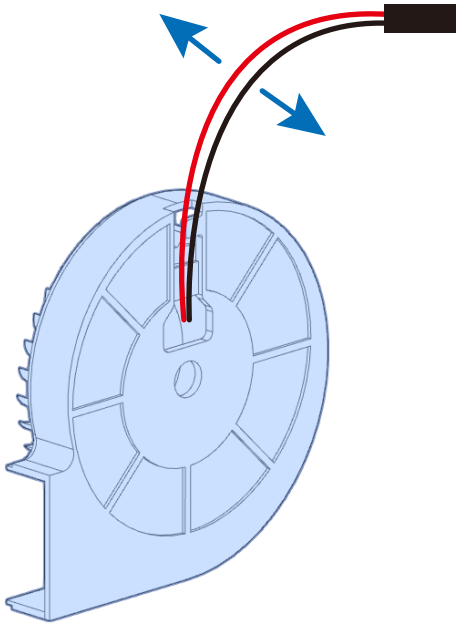


5015 Blower

FAN PREPARATION

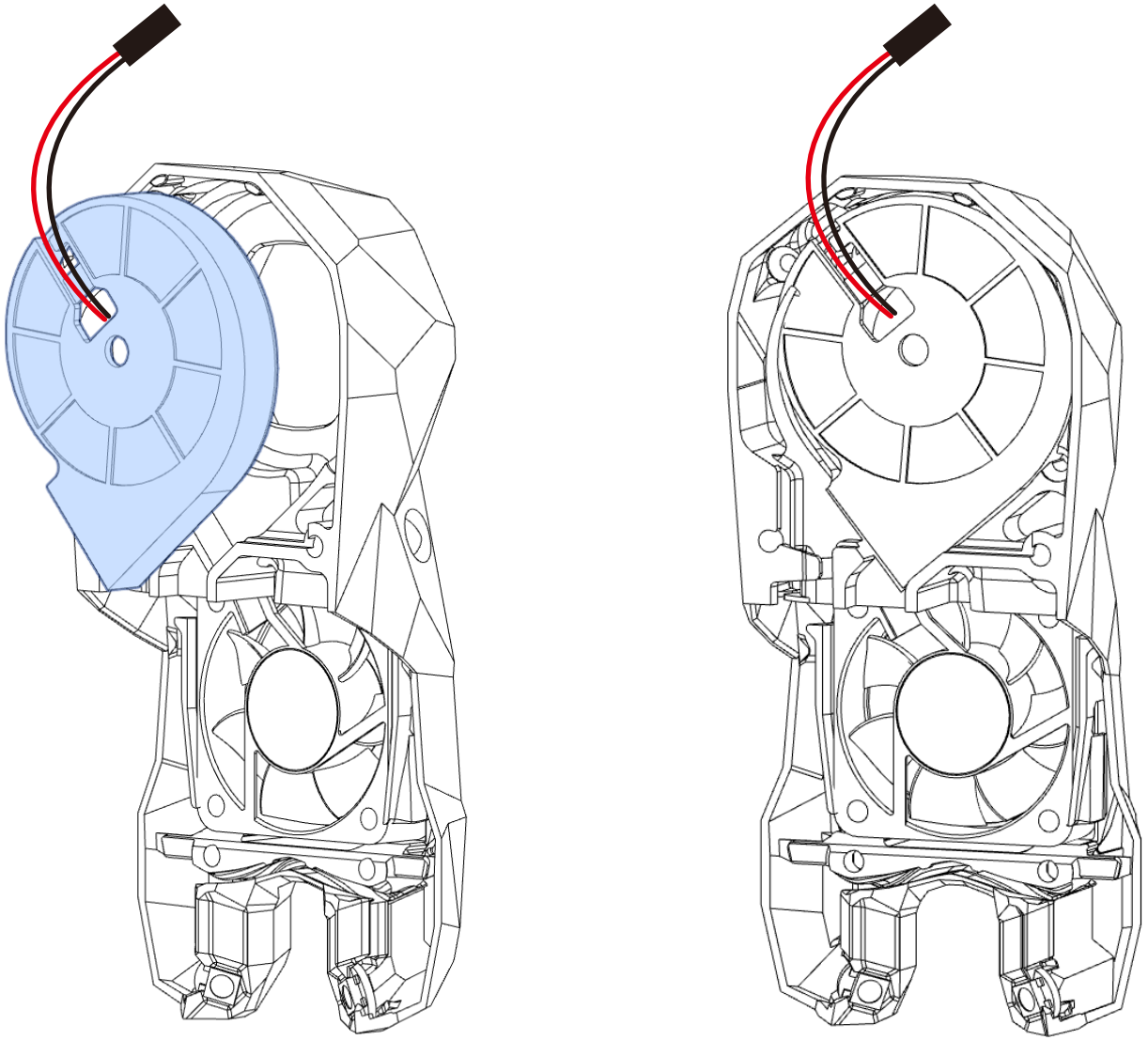
Remove the front of the 5015 fan. Clip off and file down the stock mounting ears.

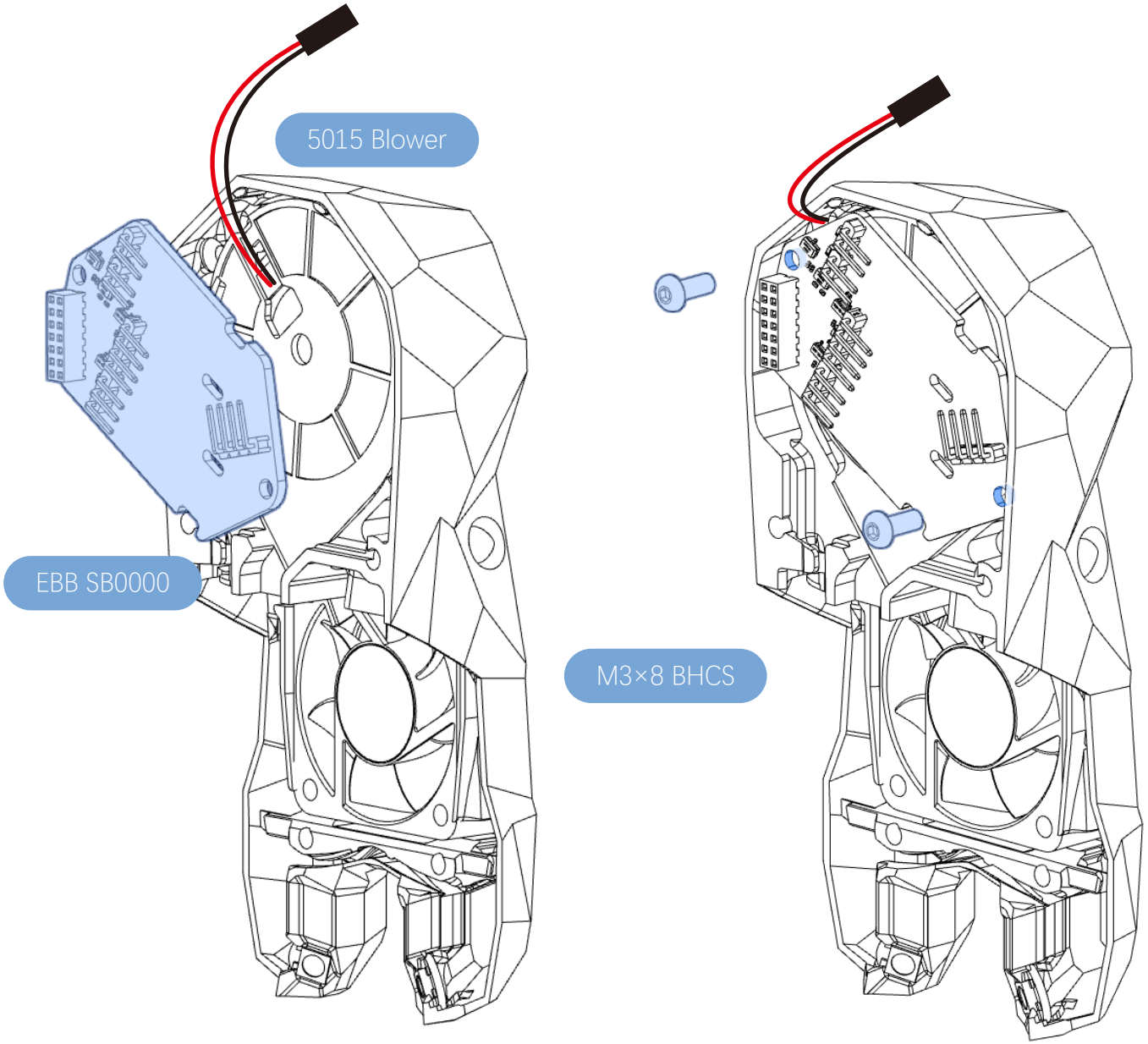




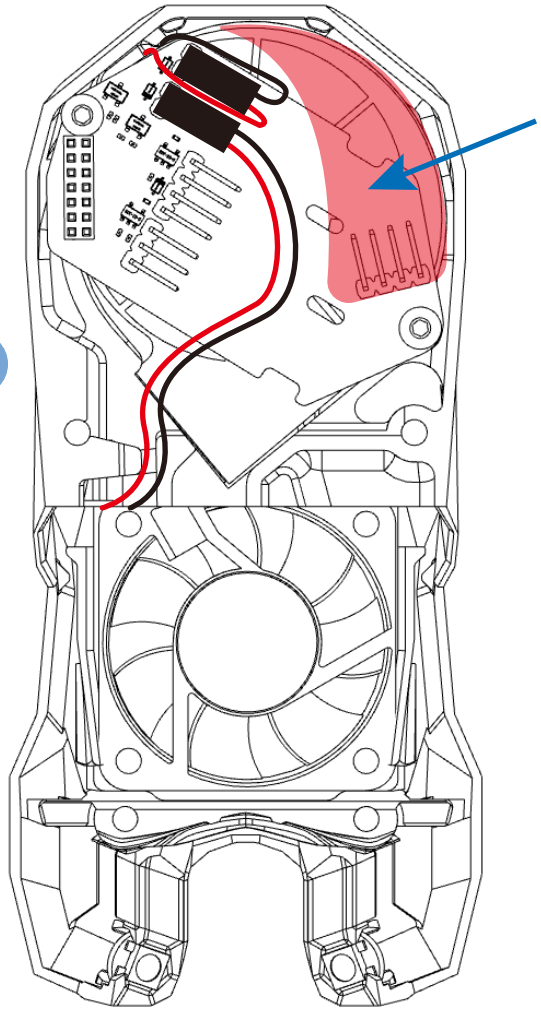
5015 Blower Wiring Instructions

The 5015 blower has short wires by design. Separate the 2 wires from each other to make wire routing easier




5015 Blower
EBB SB0000
M3×8 BHCS

4010 Fan

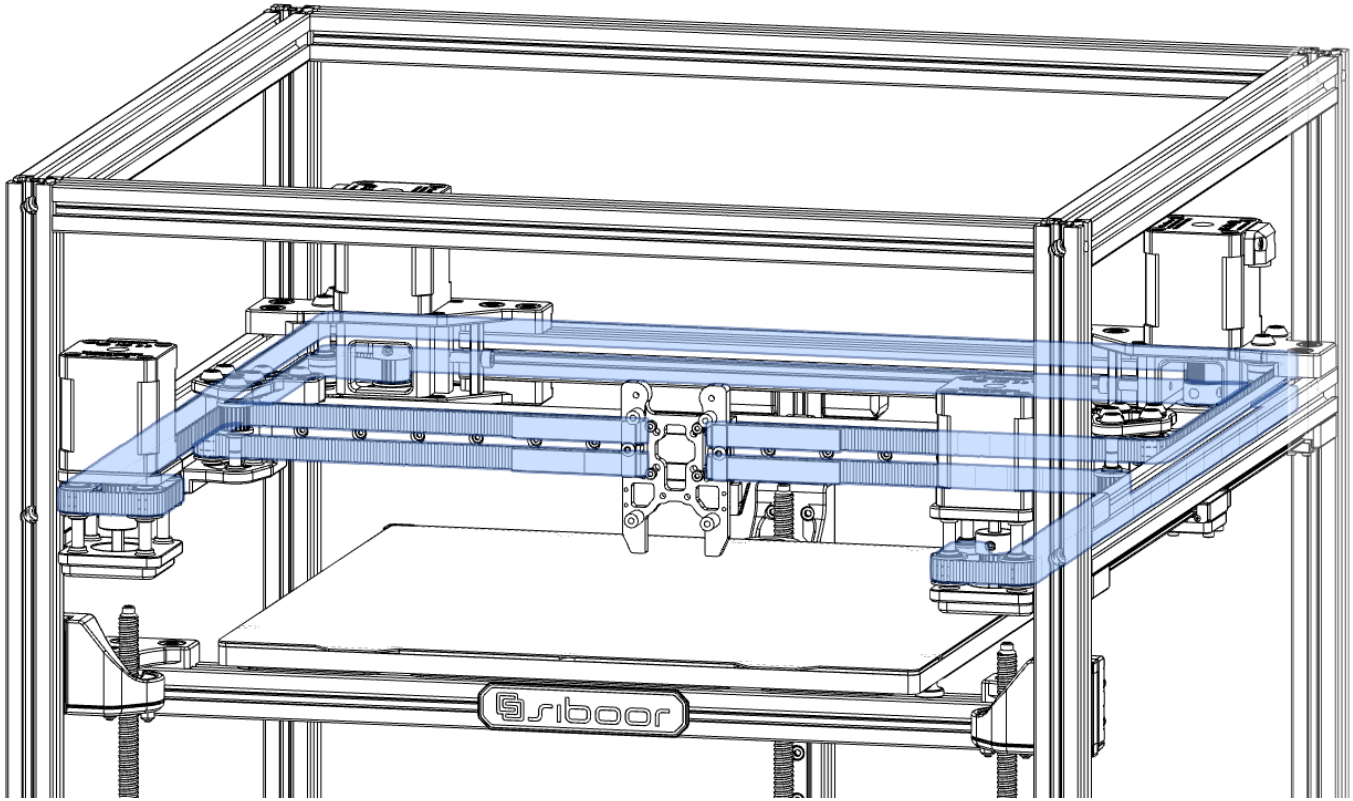


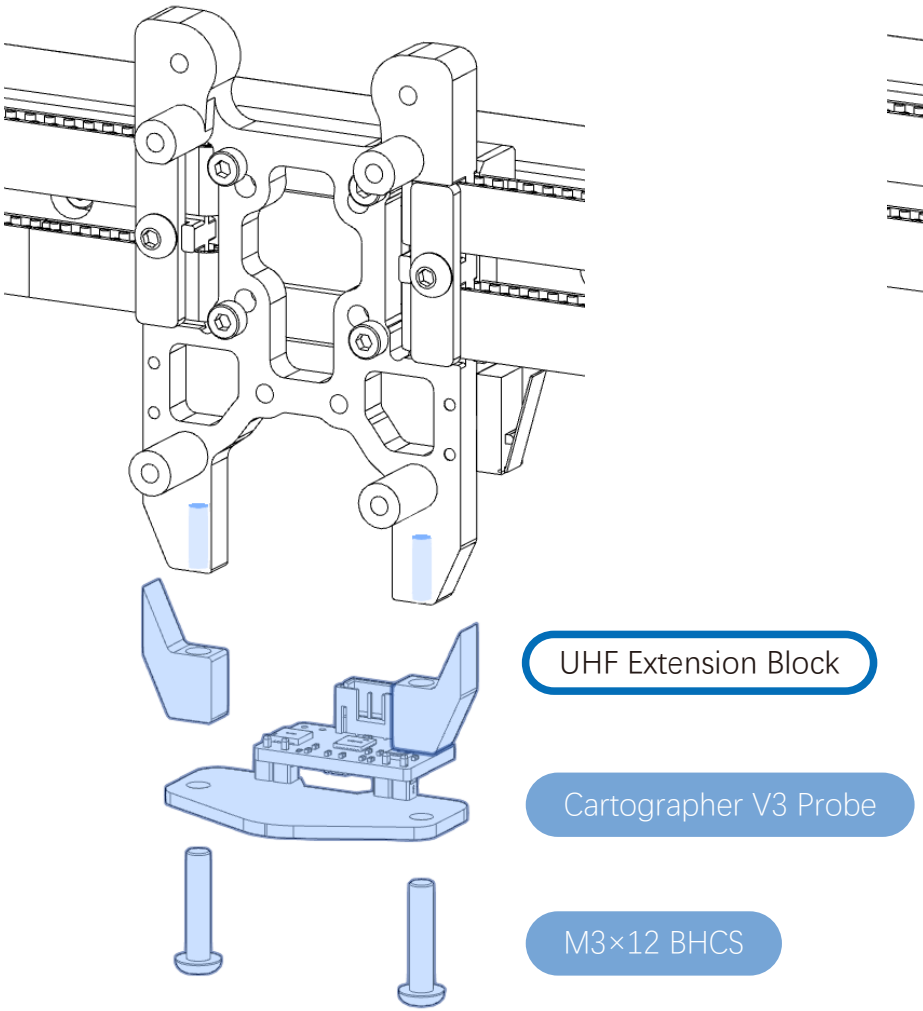
Reason for Tightly Designed Cables

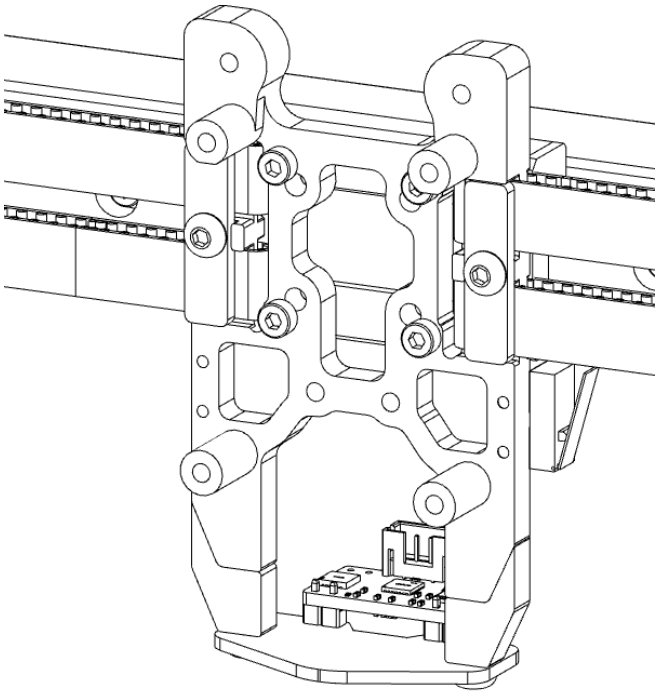
The cables are designed to be so compact to prevent the Cartographer's four cables and the 5015 blower cables from overlapping. This ensures that the faceplate and the CW2 extruder can be properly aligned.

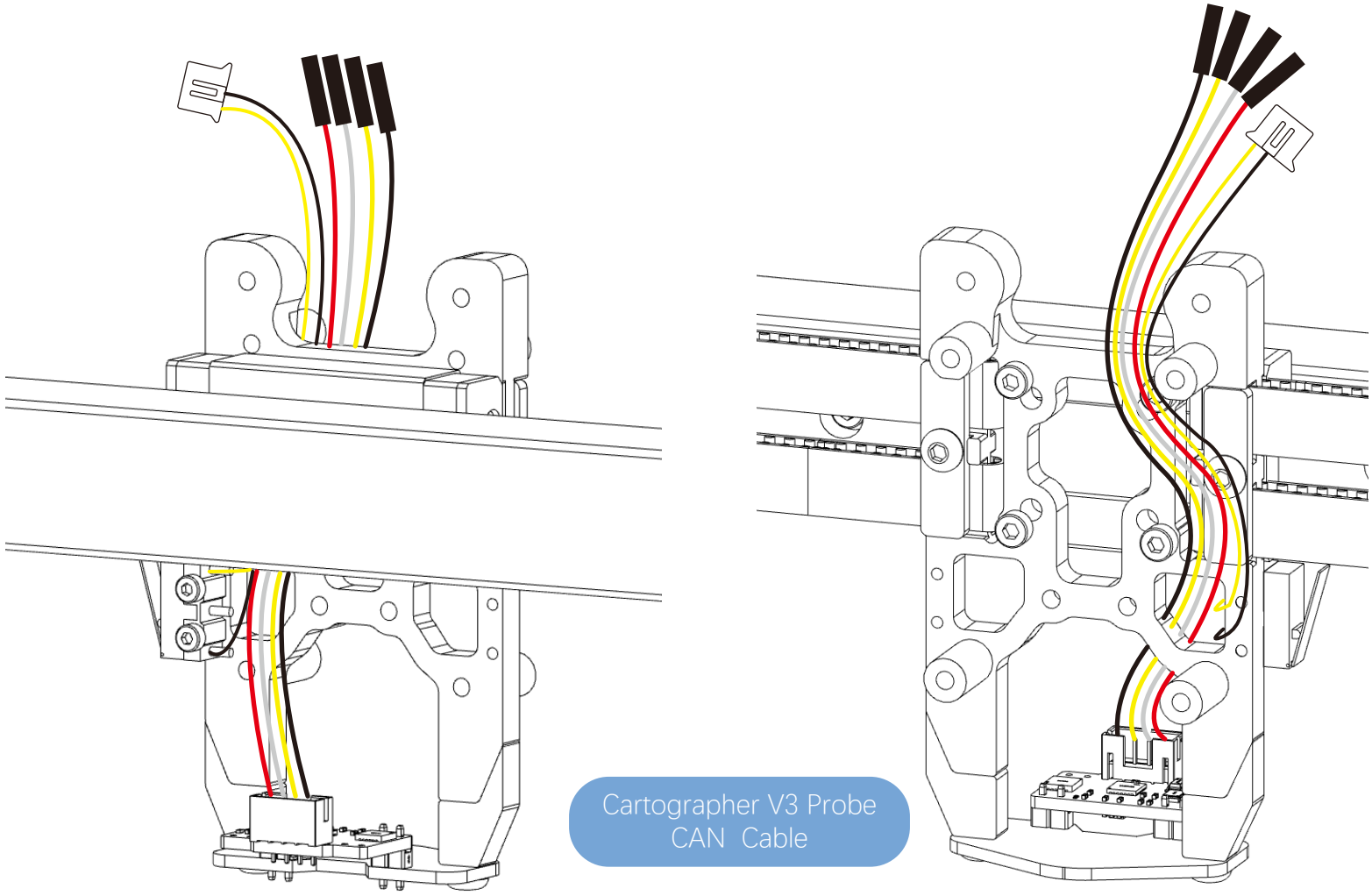
Optimized Instructions for Printer Maintenance

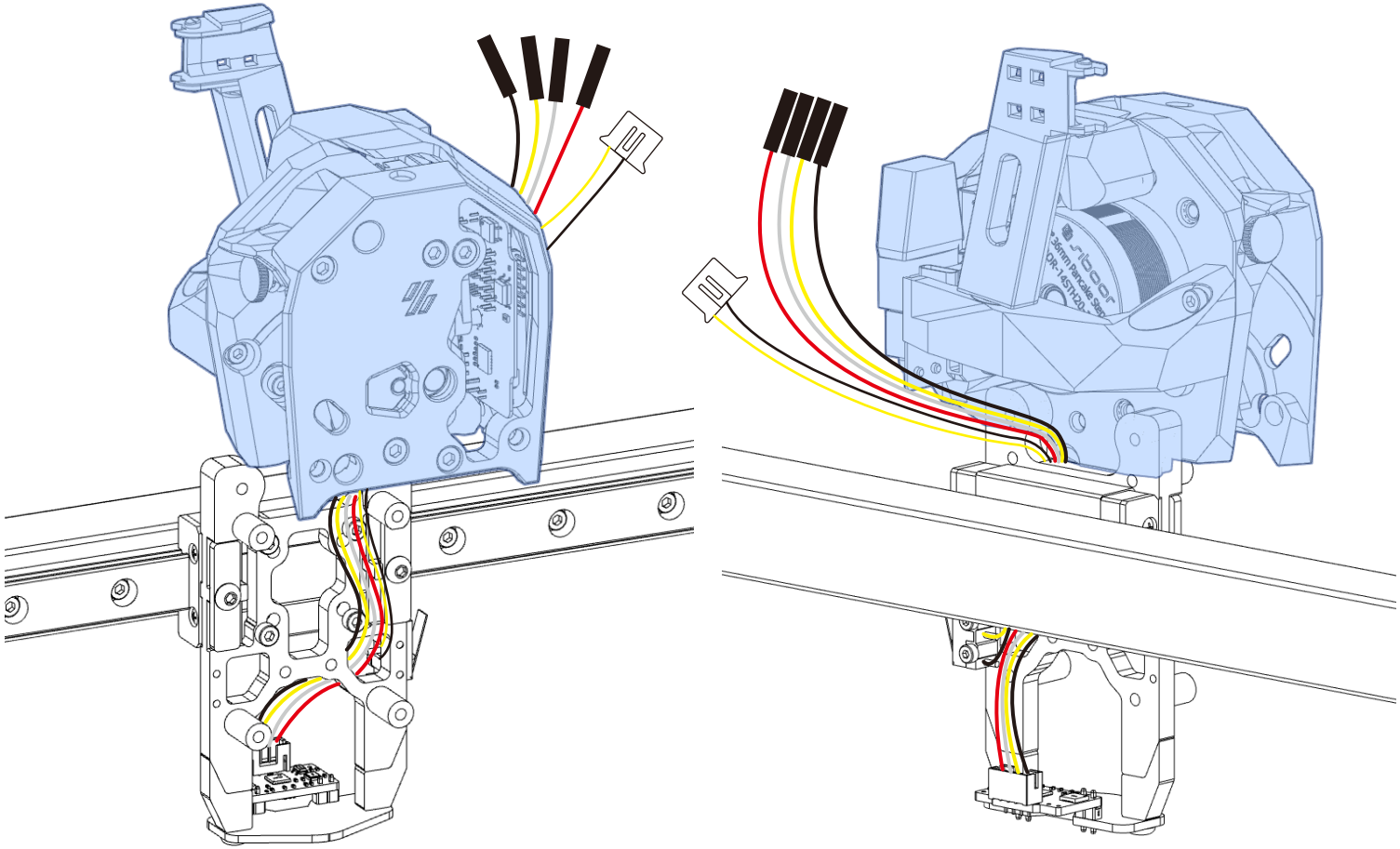
Returning to the printer, you may notice that after a period of pre-tensioning, the timing belts have become quite loose.
This is because the tension has now been evenly distributed.
Re-tighten the belts before proceeding with the next steps.

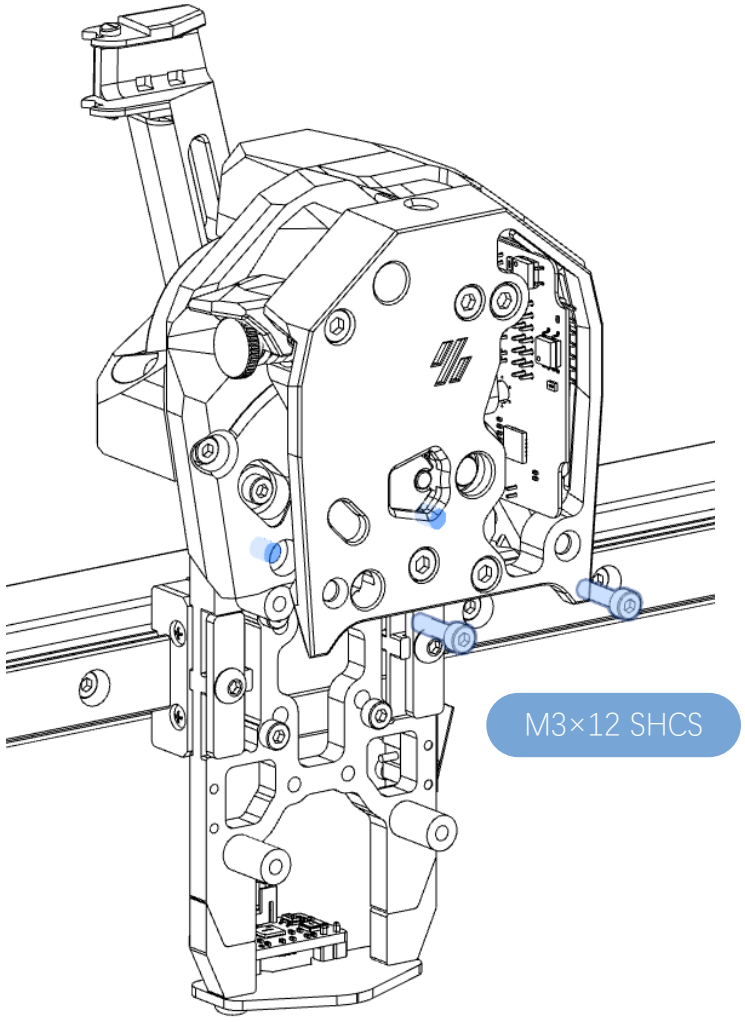


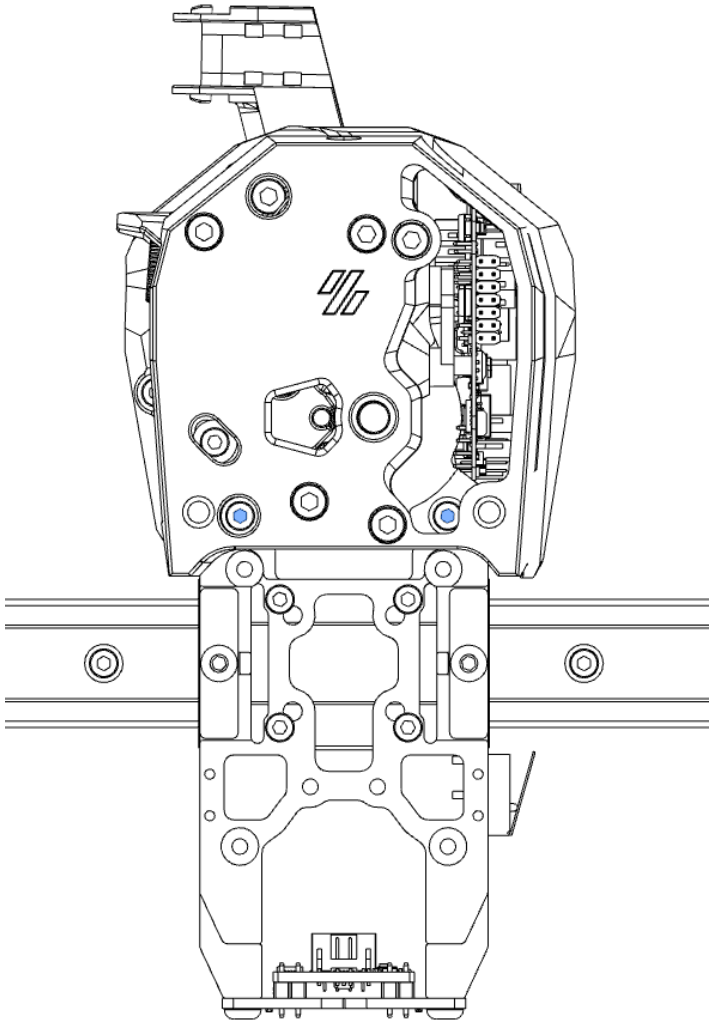

UHF Extension Block
Cartographer V3 Probe
M3×12 BHCS



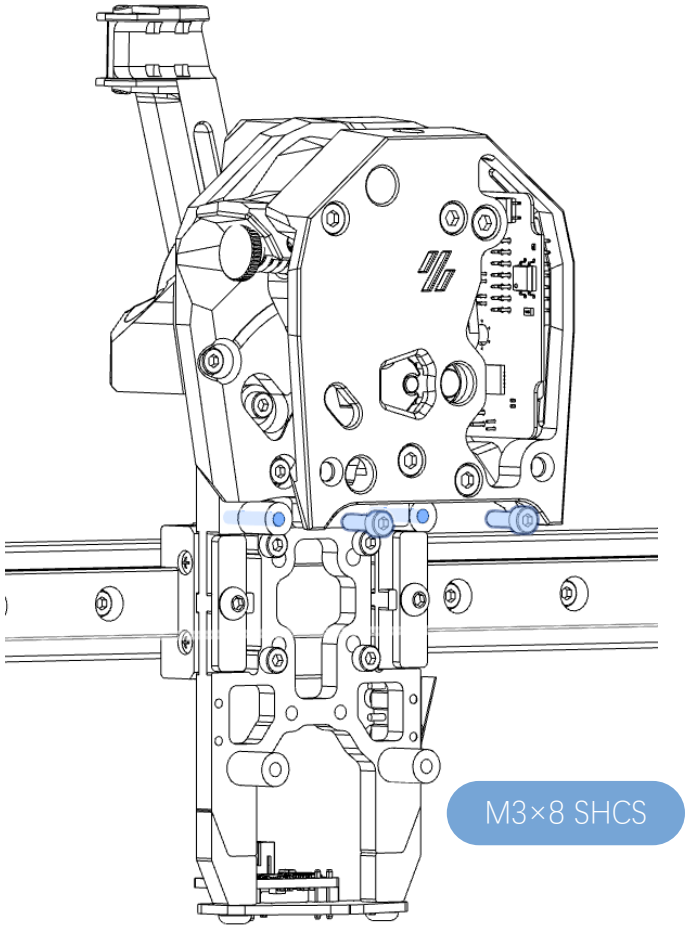

Cartographer V3 Probe
CAN Cable

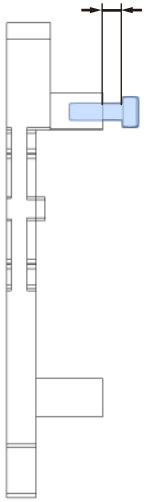


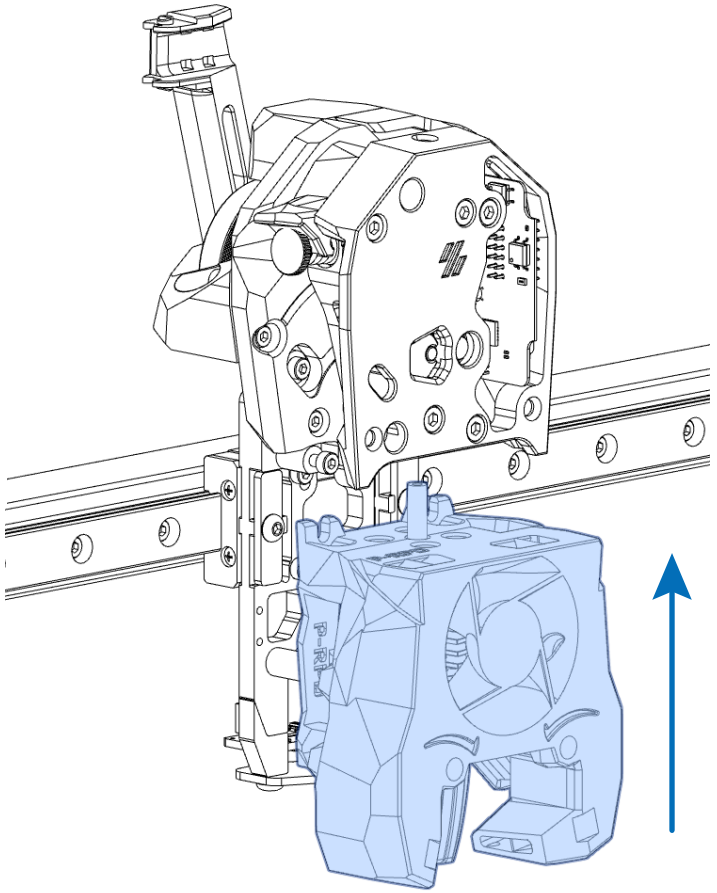

M3×12 SHCS

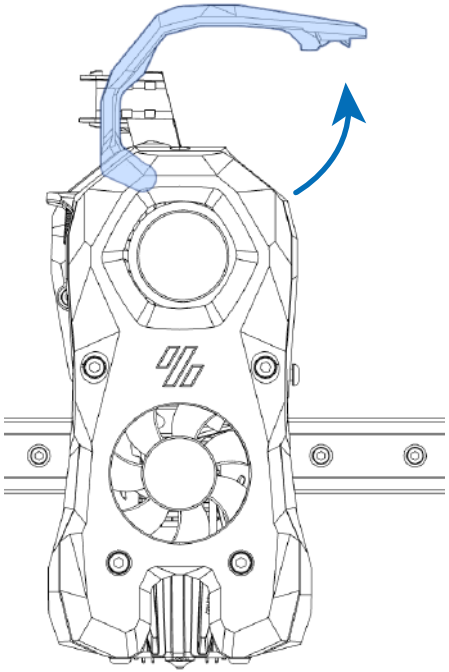


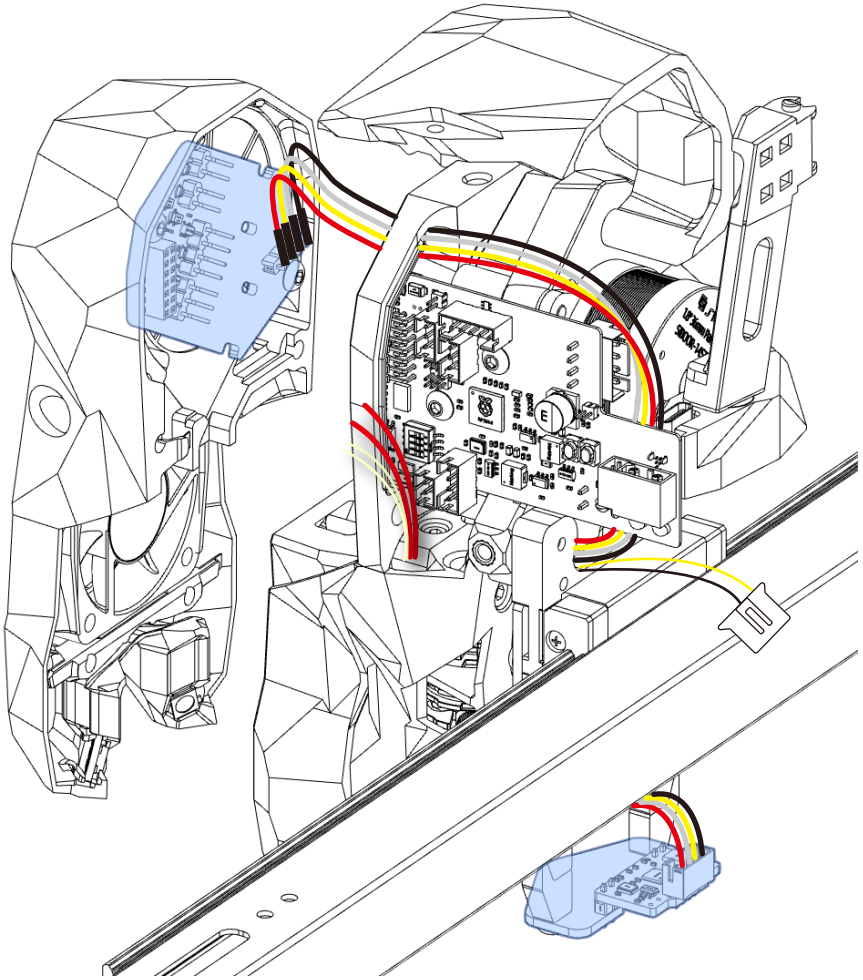
Allow about 3 mm

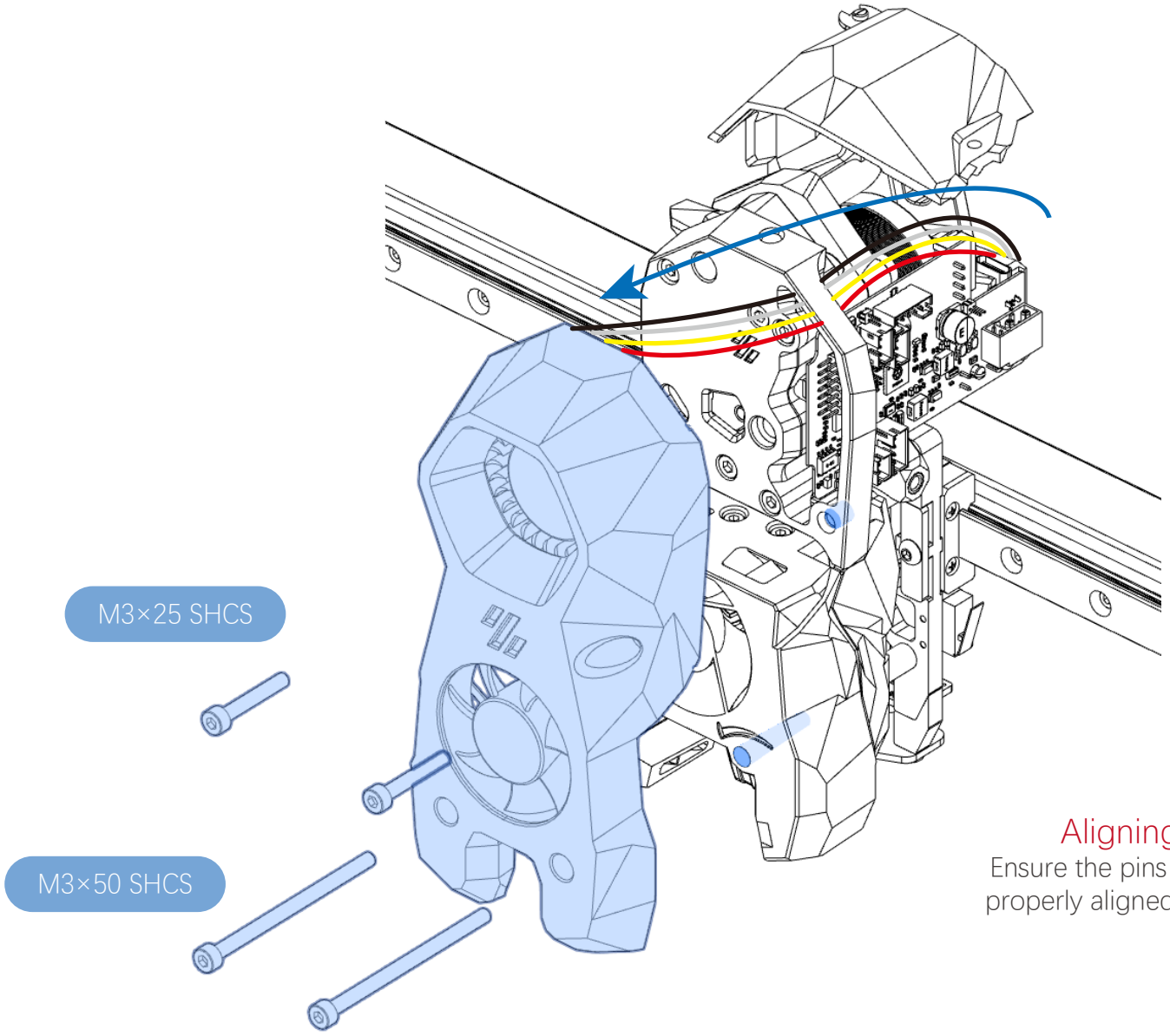






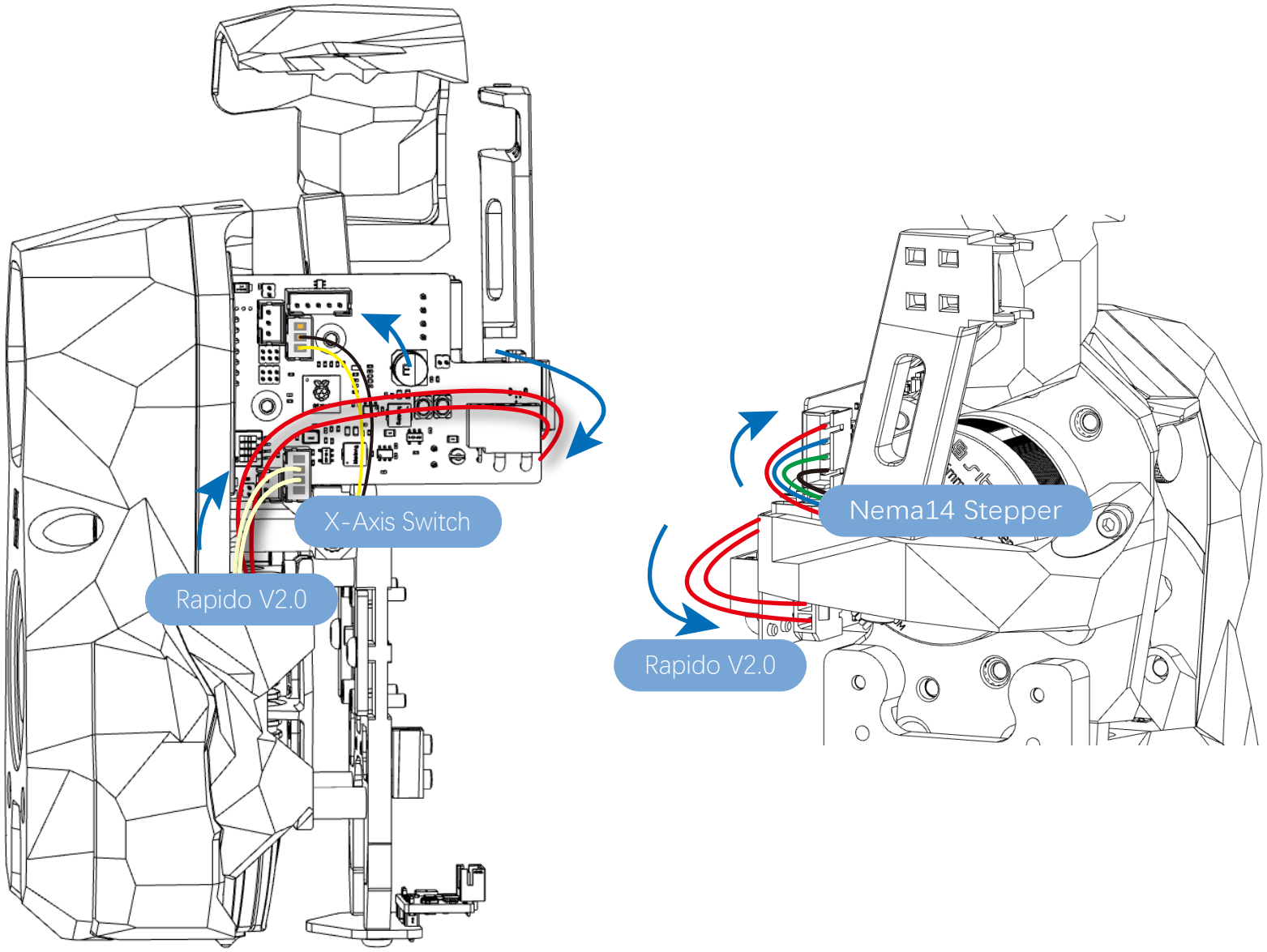


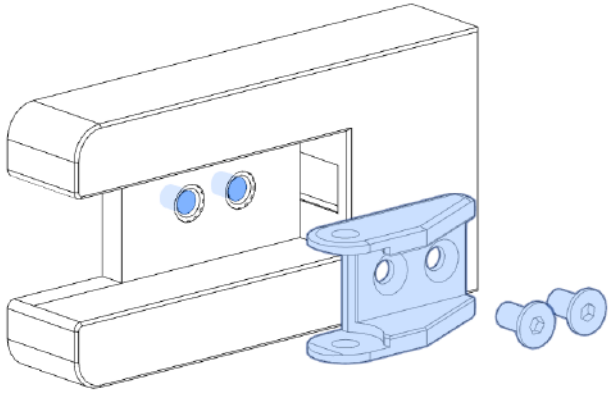




Aligning EBB CAN Board Pins

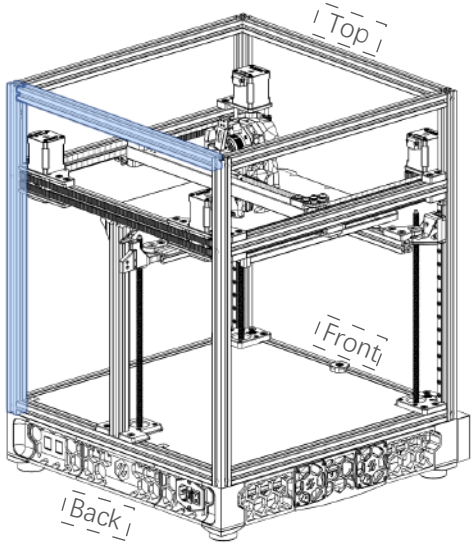
Ensure the pins of the EBB CAN board are properly aligned to avoid any short circuits.

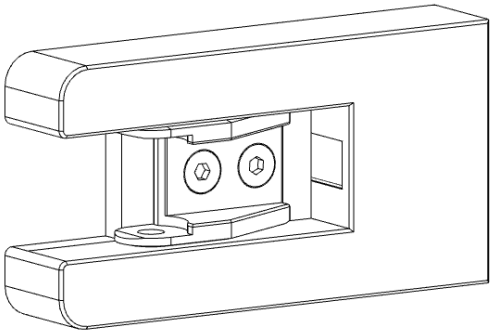

X-Axis Switch
Rapido V2.0
Nema14 Stepper
Rapido V2.0

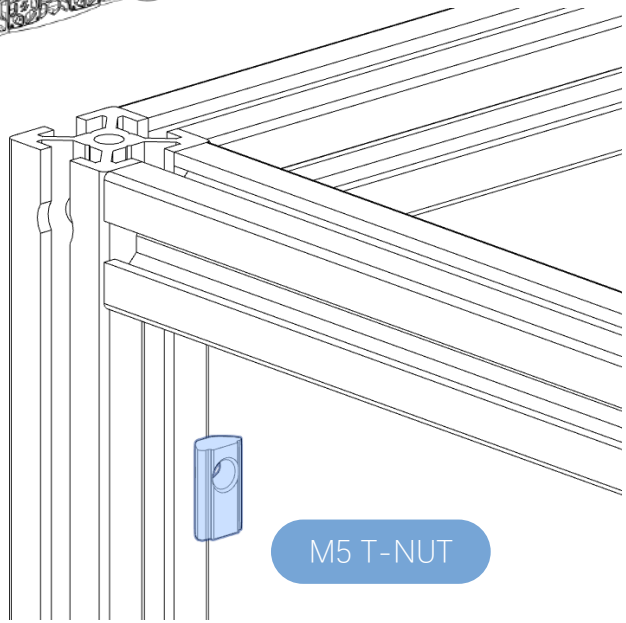


6×10 Drag chain head

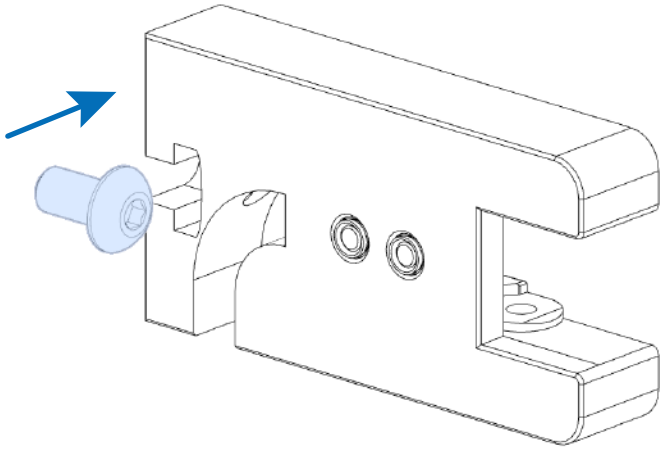
M3×6 FHCS

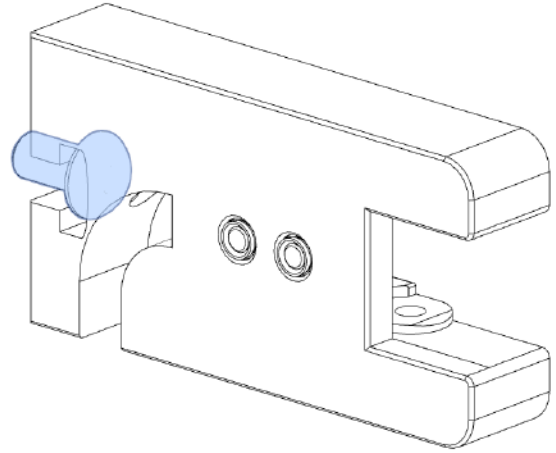


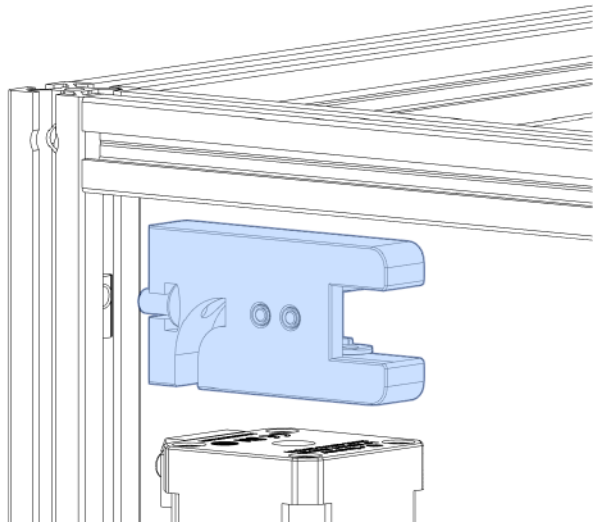


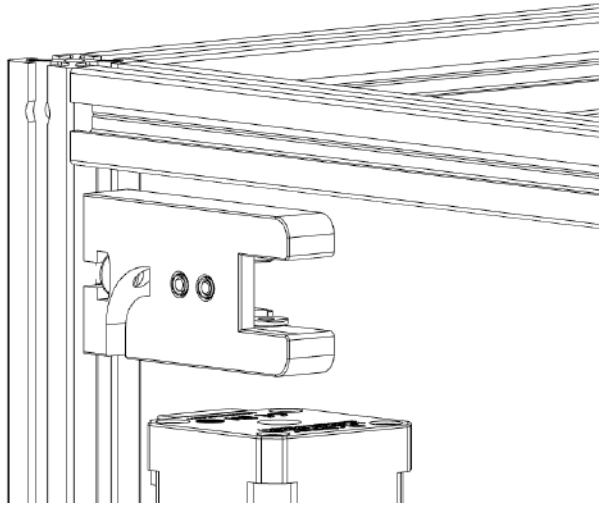


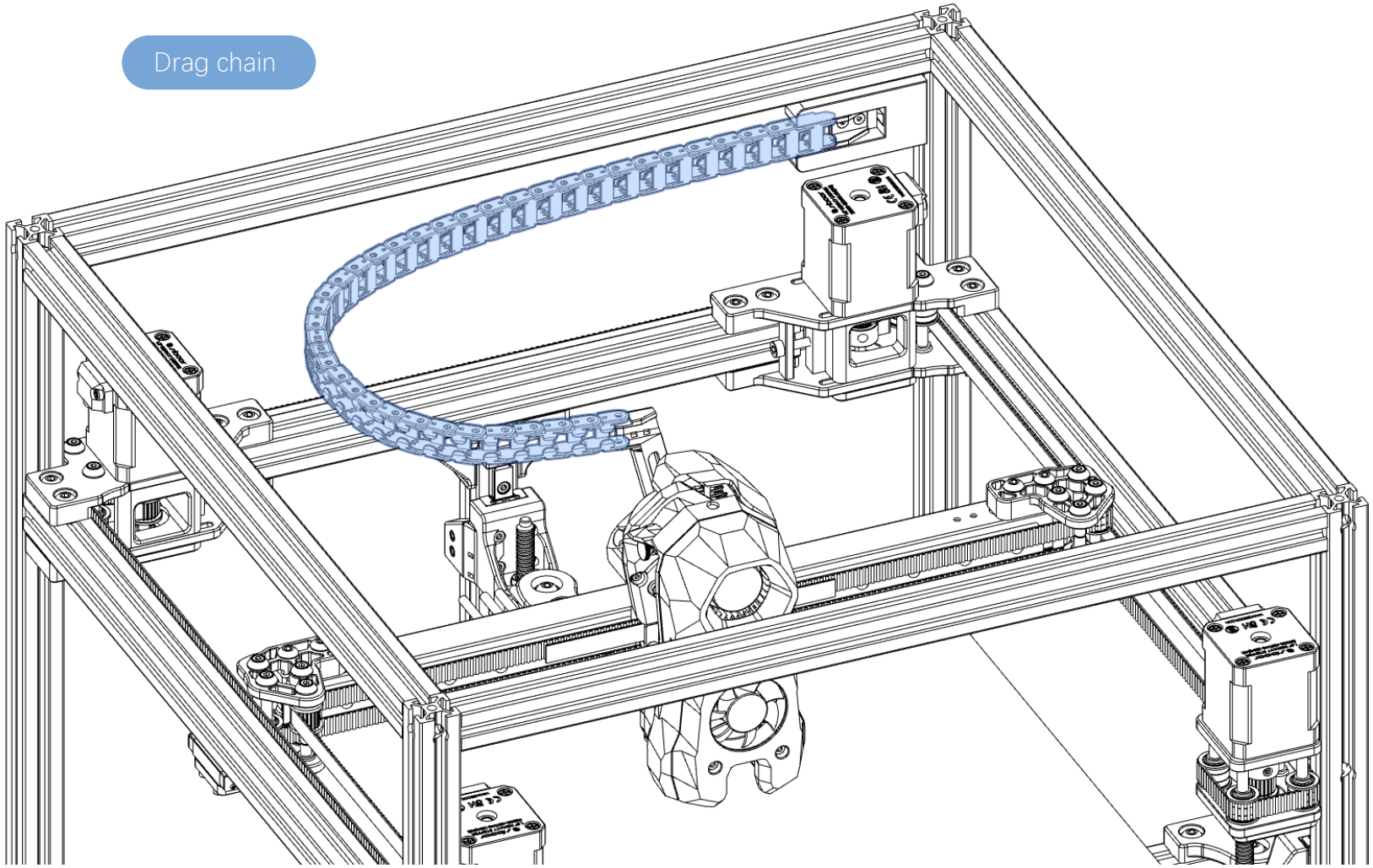
M5 T-NUT

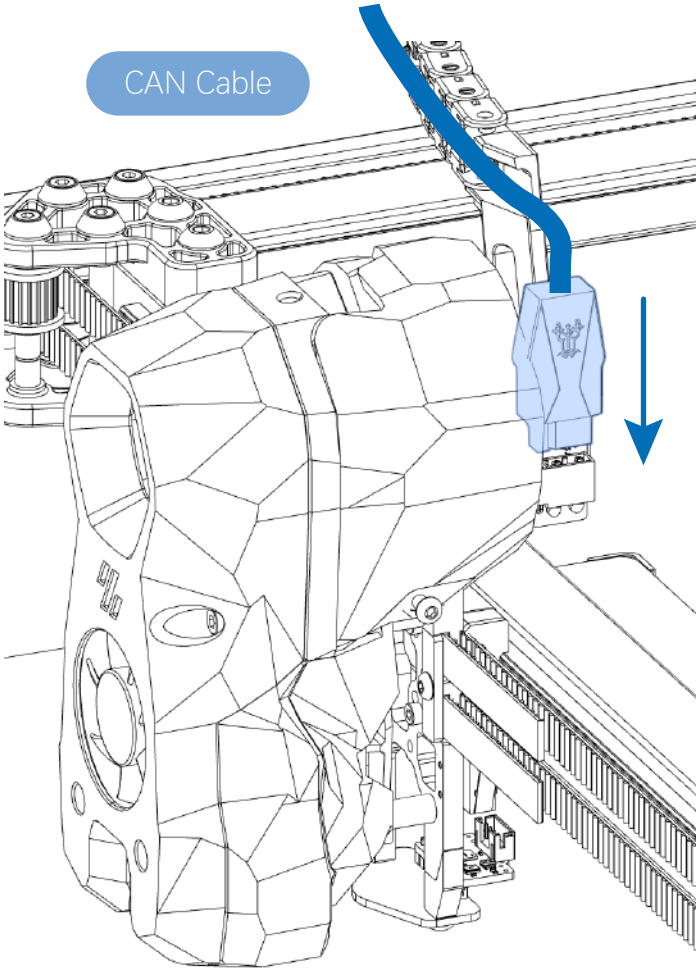


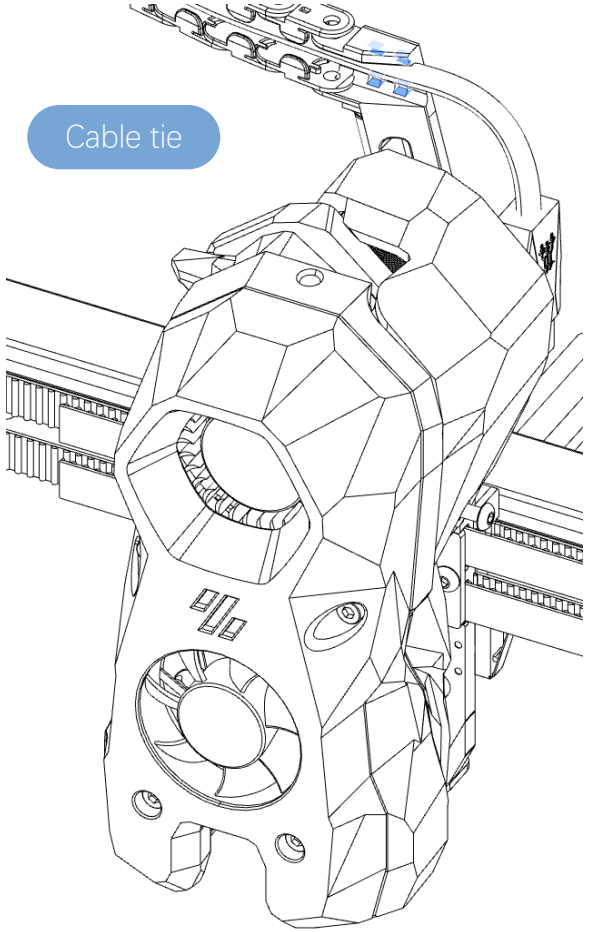


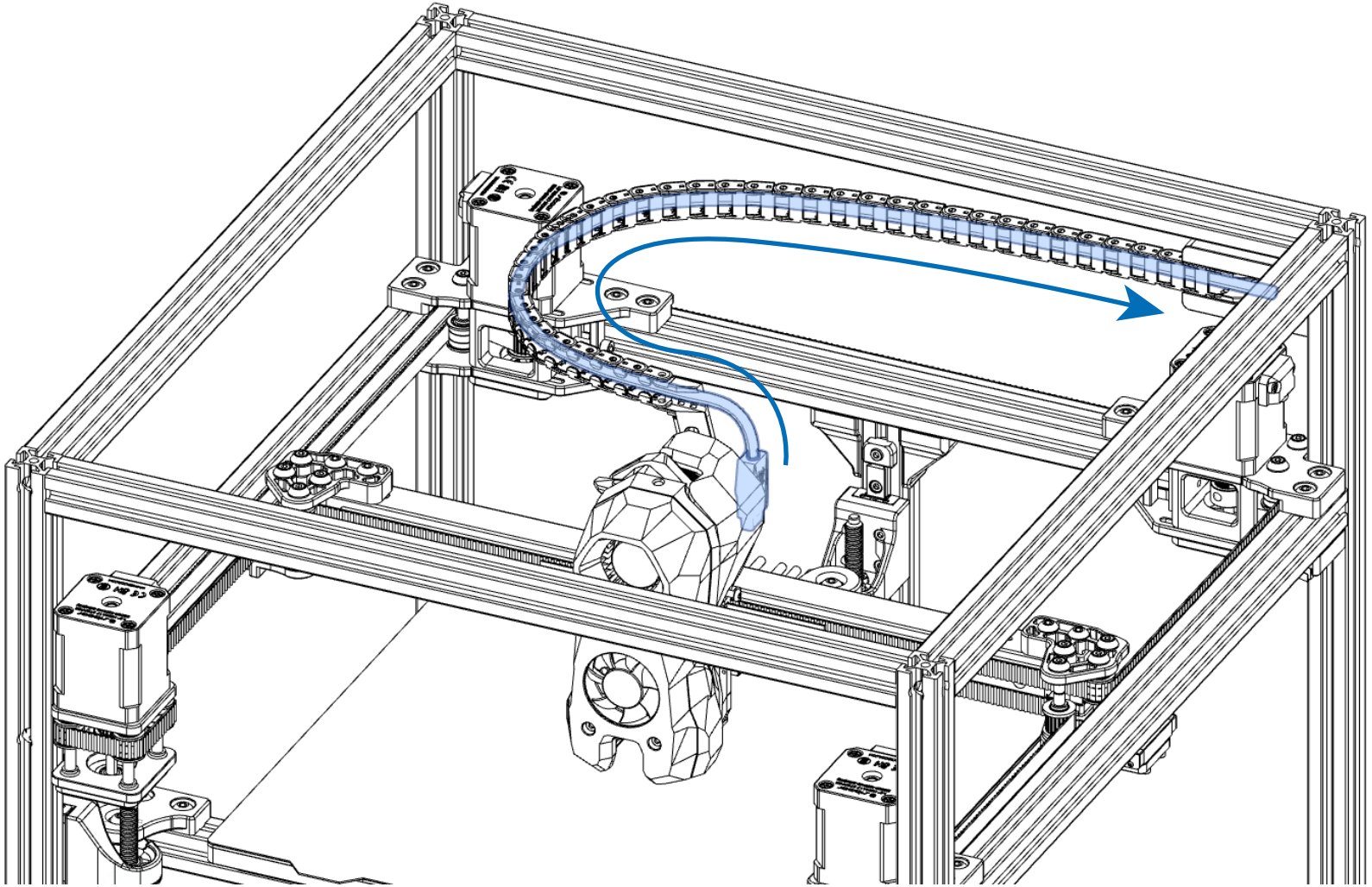





Drag chain


CAN Cable


Cable tie



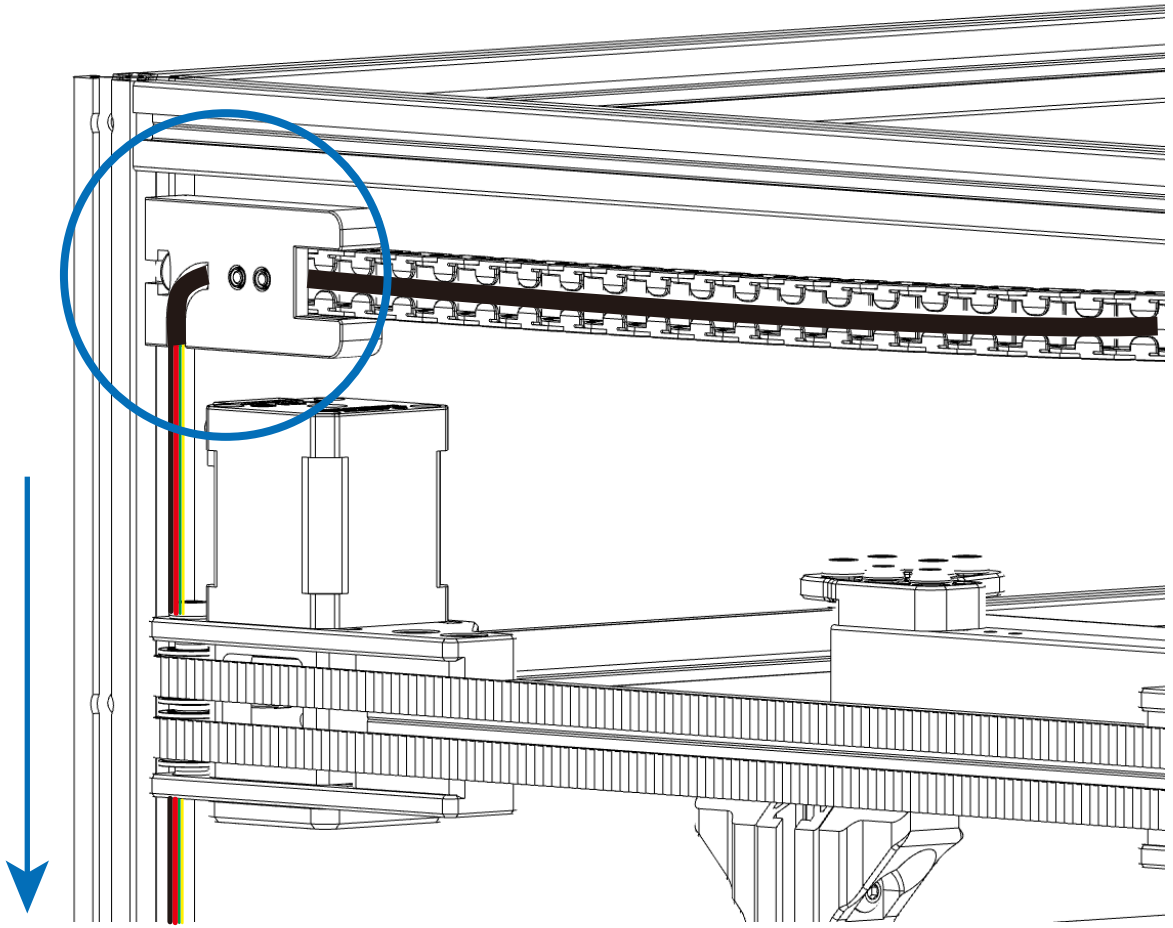
Removing XH2.54 Connector Shells

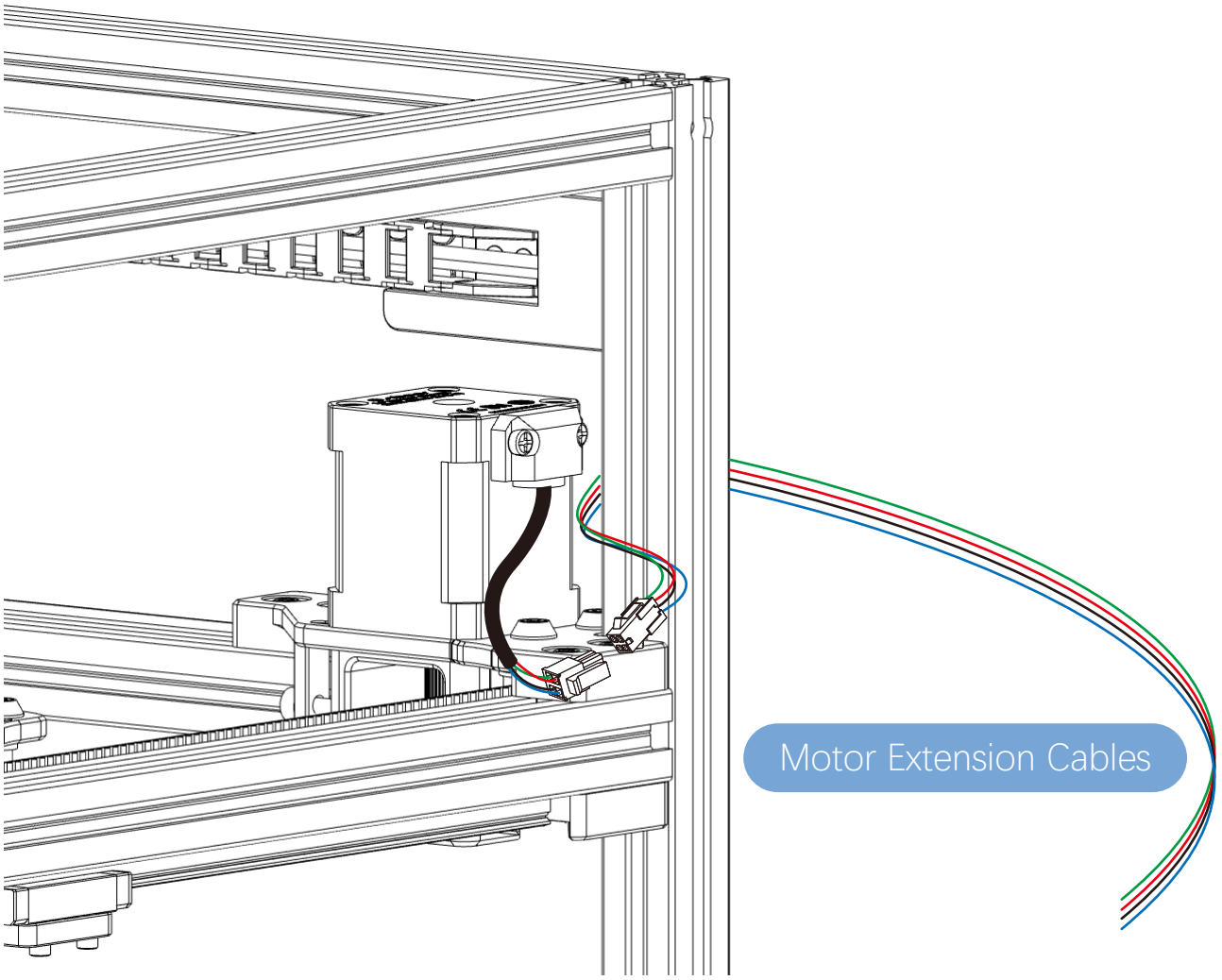
The cables with XH2.54 connectors
don't fit through the bracket interior?
Try removing the outer shell
of the XH2.54 connector first.

Tutorial Video:
https://youtu.be/q8tU_NEZK9g?si=uQx6jH1NrSWA7Fue

CAN CABLE

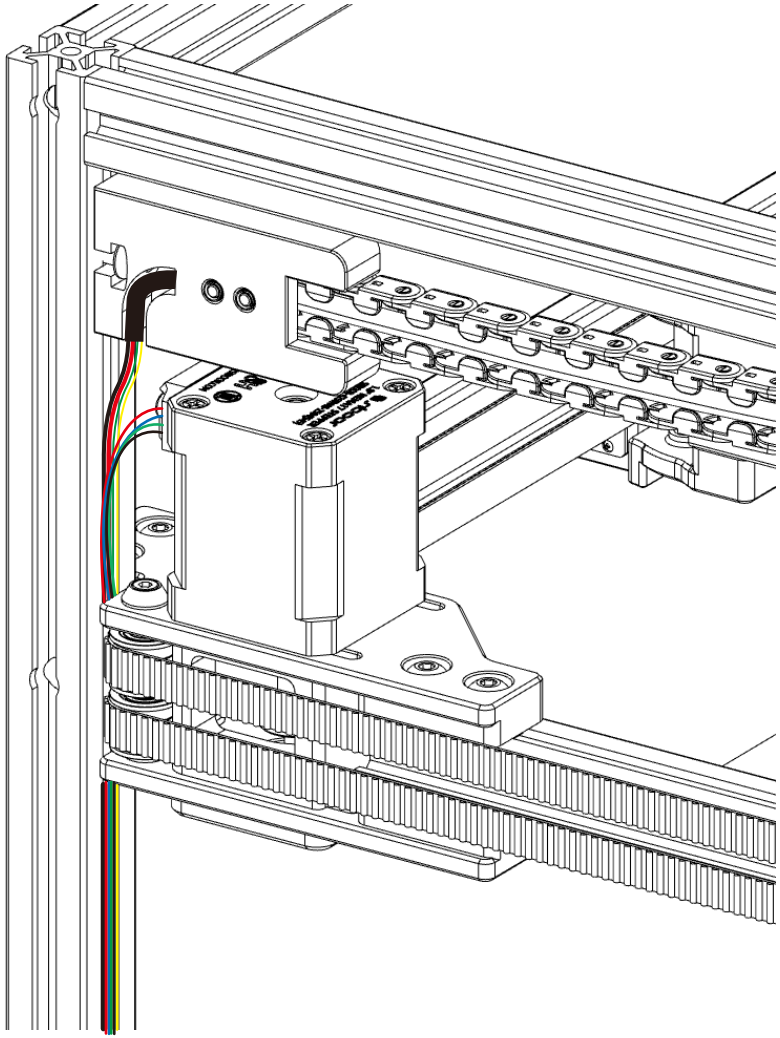
Carefully peel off the black rubber sheath of the CAN cable to ensure the internal wires are not damaged, allowing them to be hidden within the groove of the extrusion.

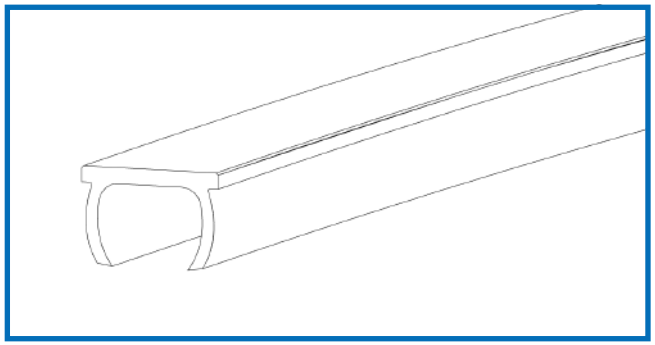



Motor Extension Cables

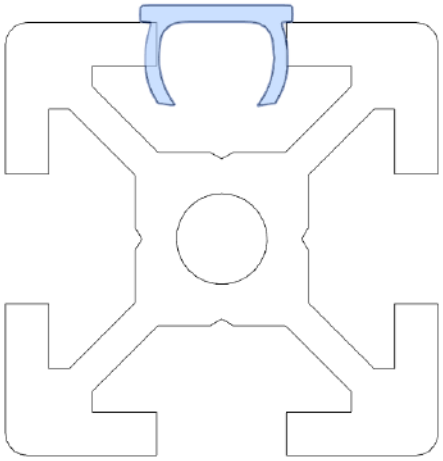
CAN Cable

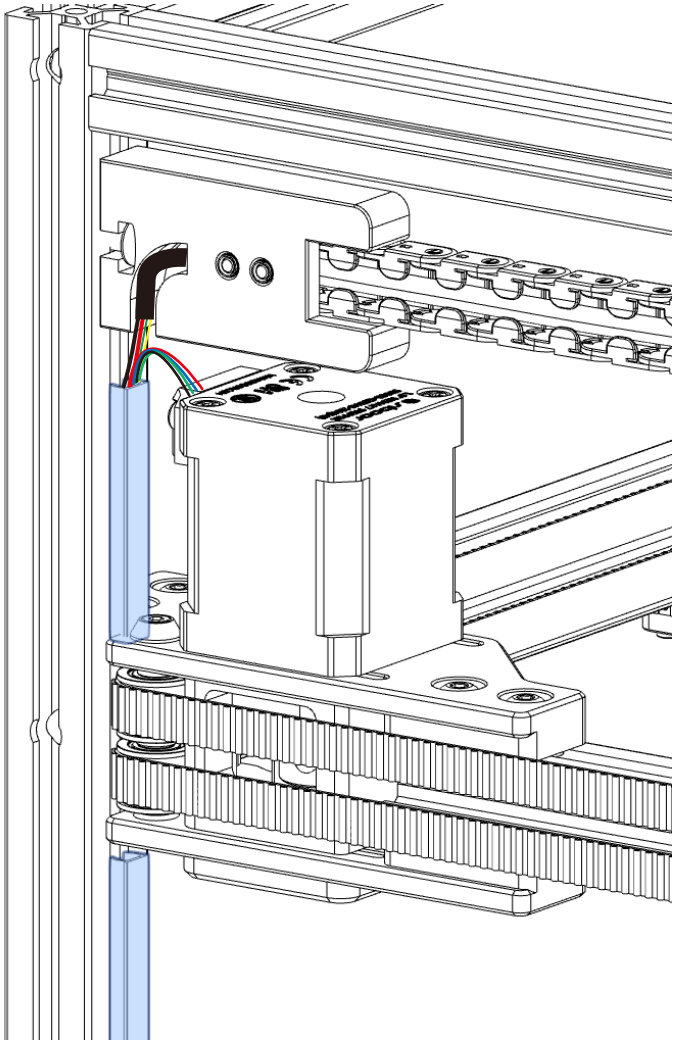
Motor Extension Cables

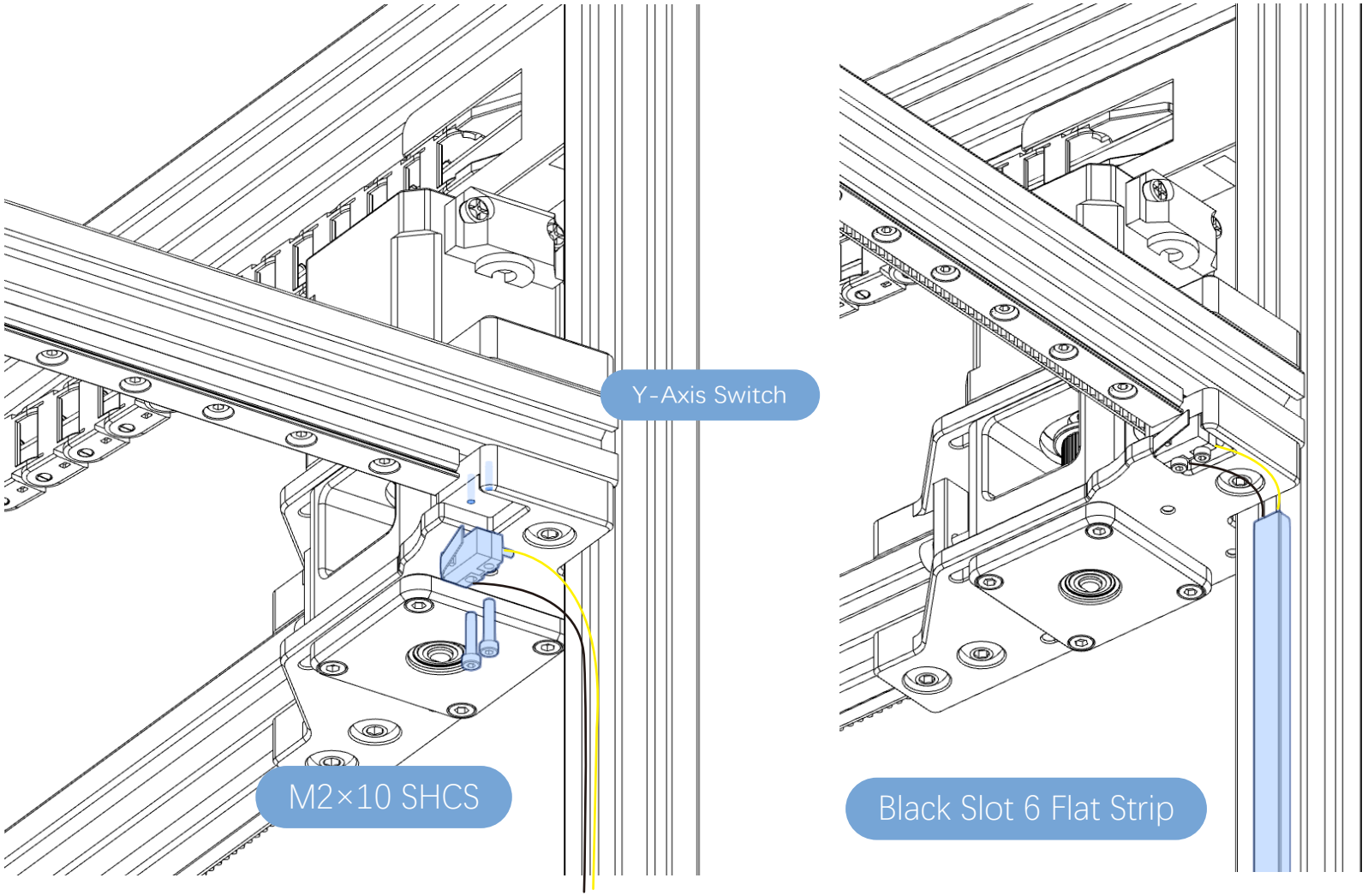




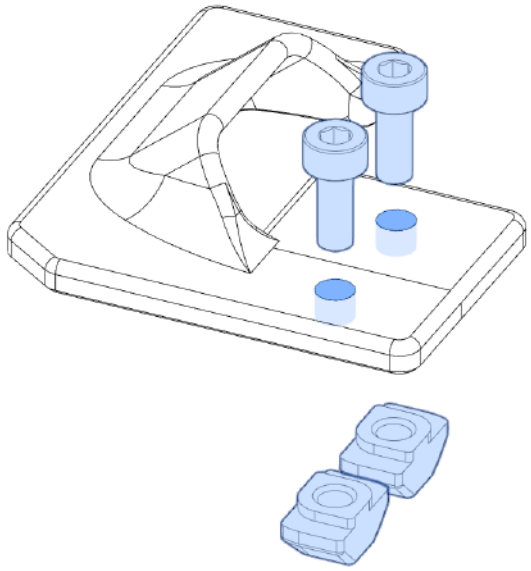
Black Slot 6mm Flat Strip



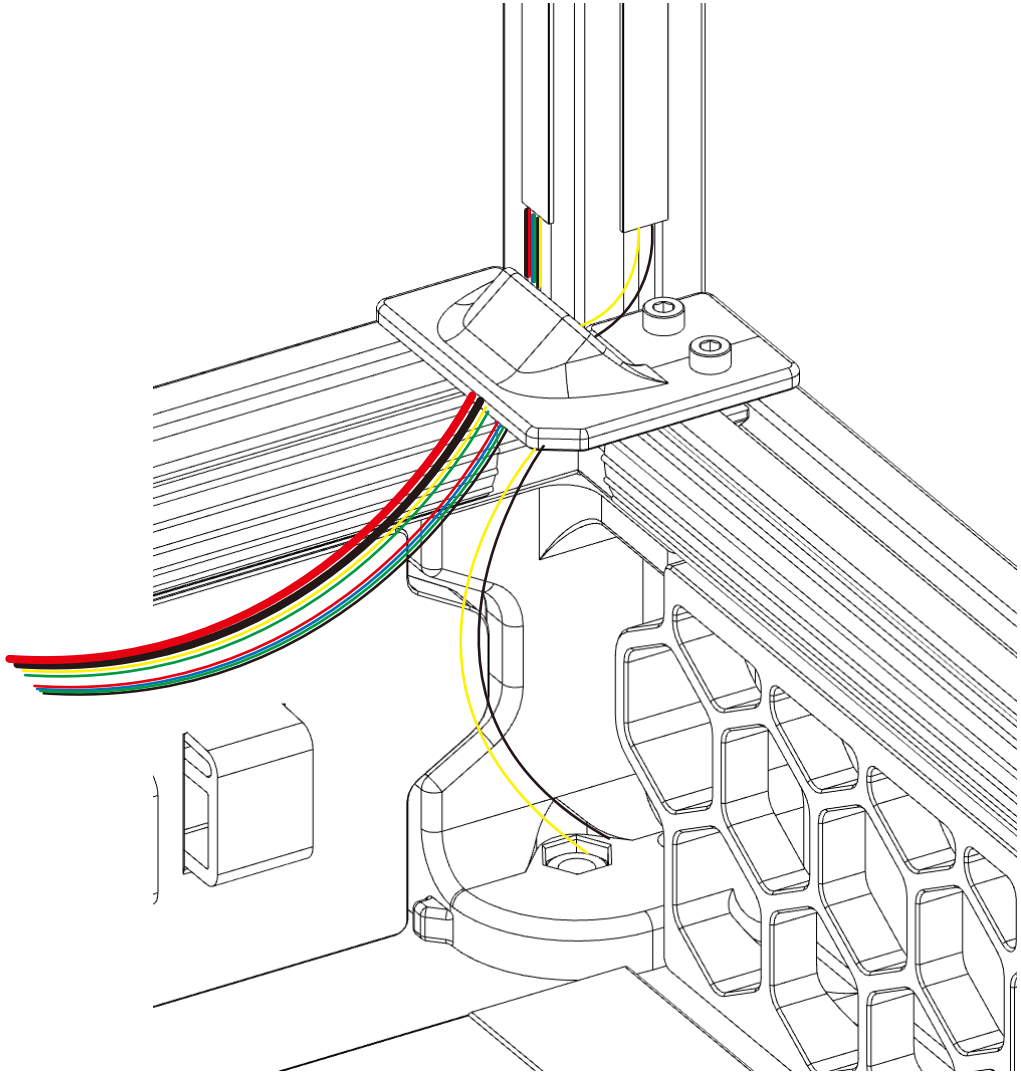


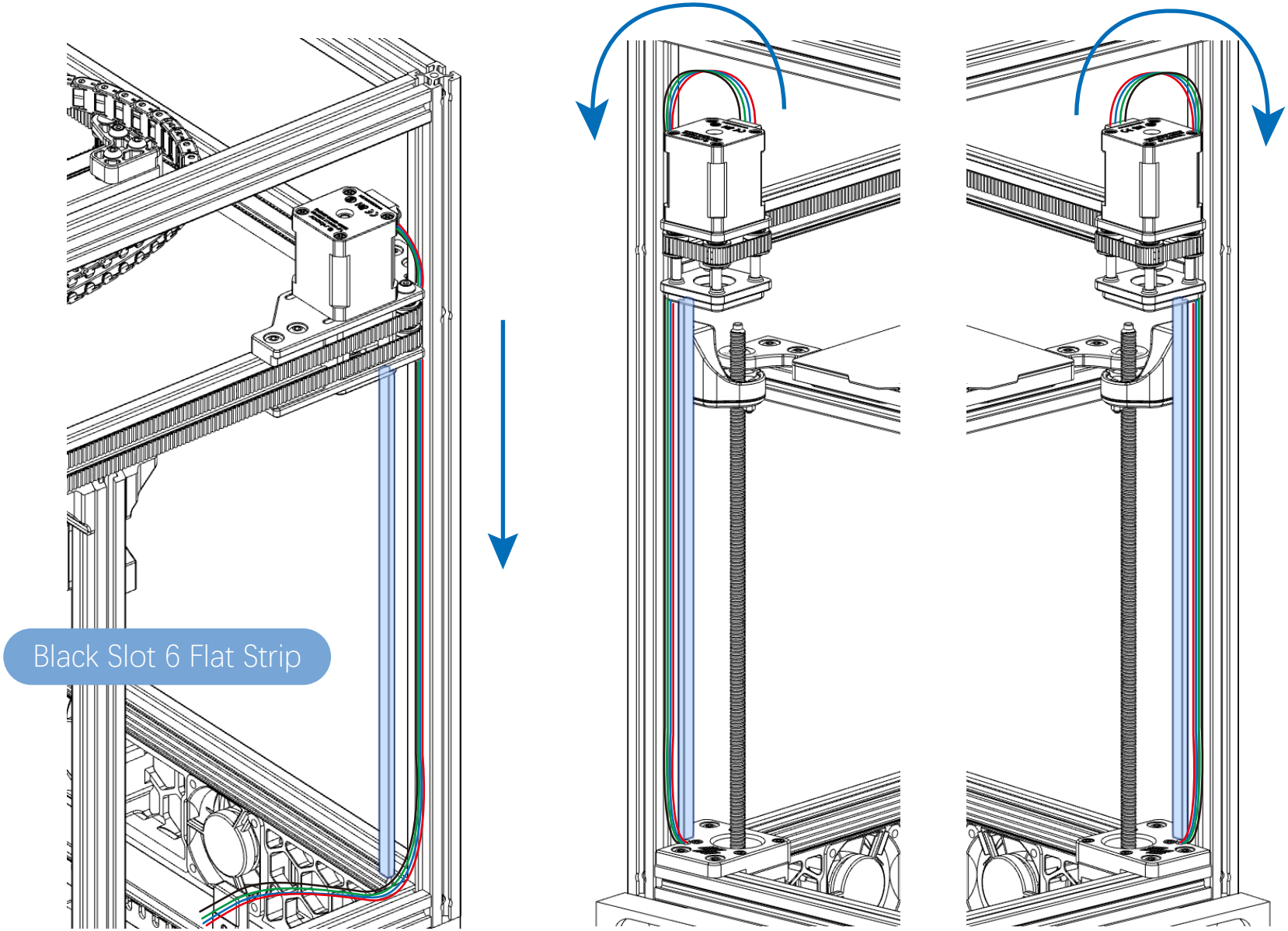

Y-Axis Switch
M2×10 SHCS
Black Slot 6 Flat Strip

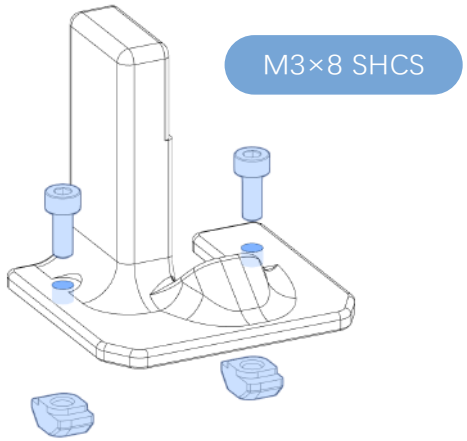
M3×8 SHCS

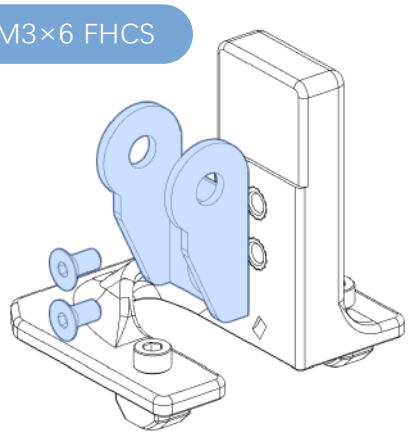


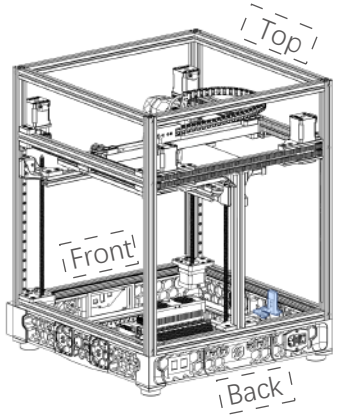
M3 Hammerhead Nut

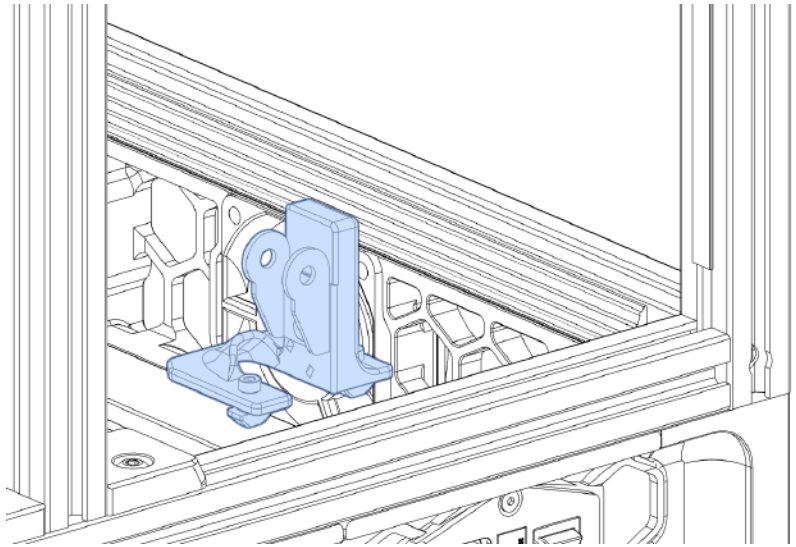


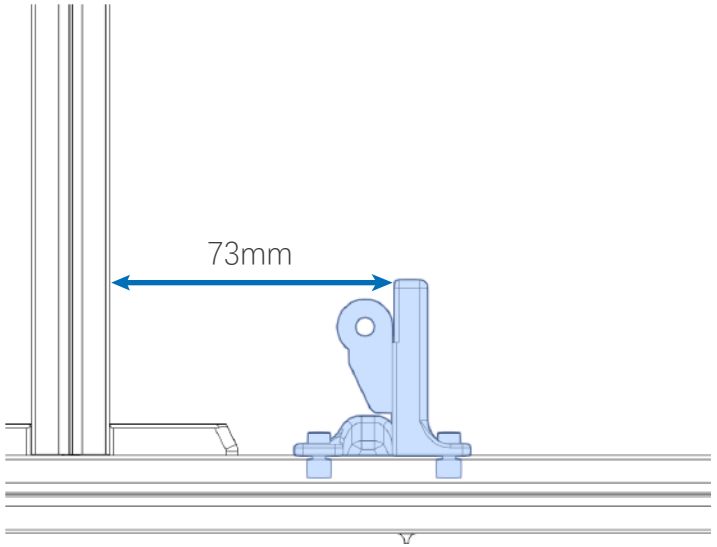

Black Slot 6 Flat Strip

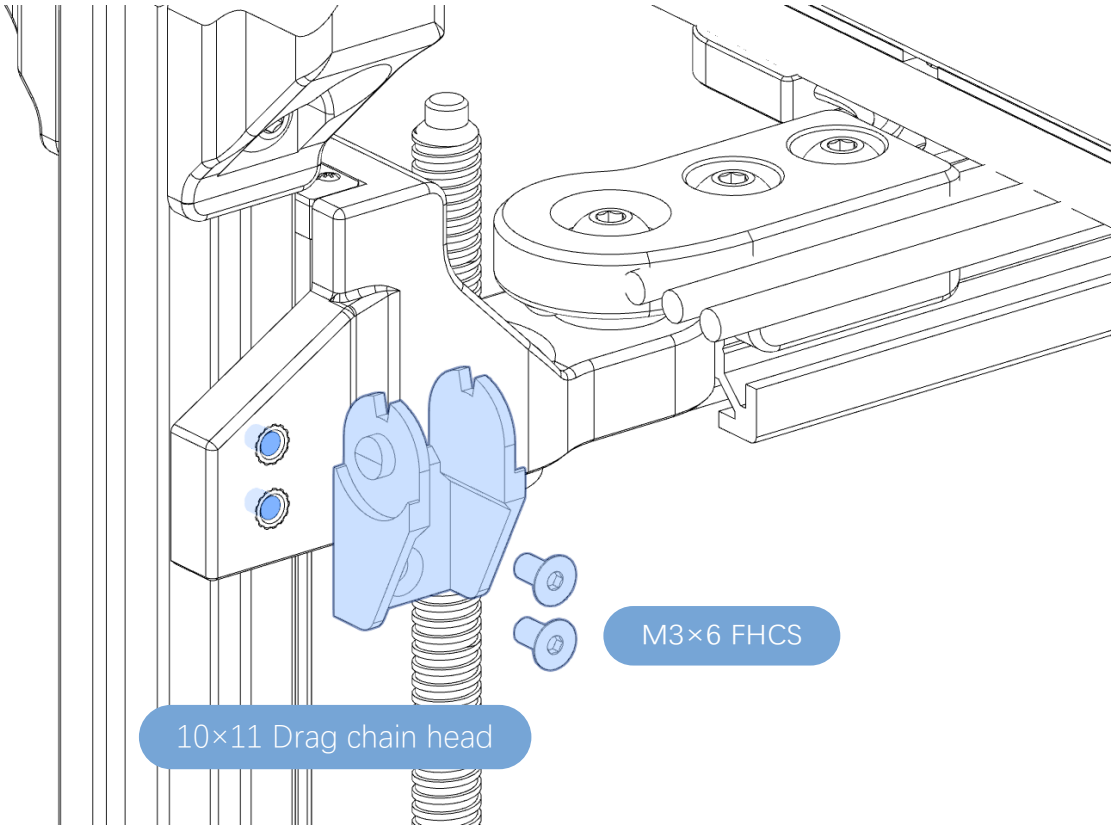

M3×8 SHCS
M3 Hammerhead Nut

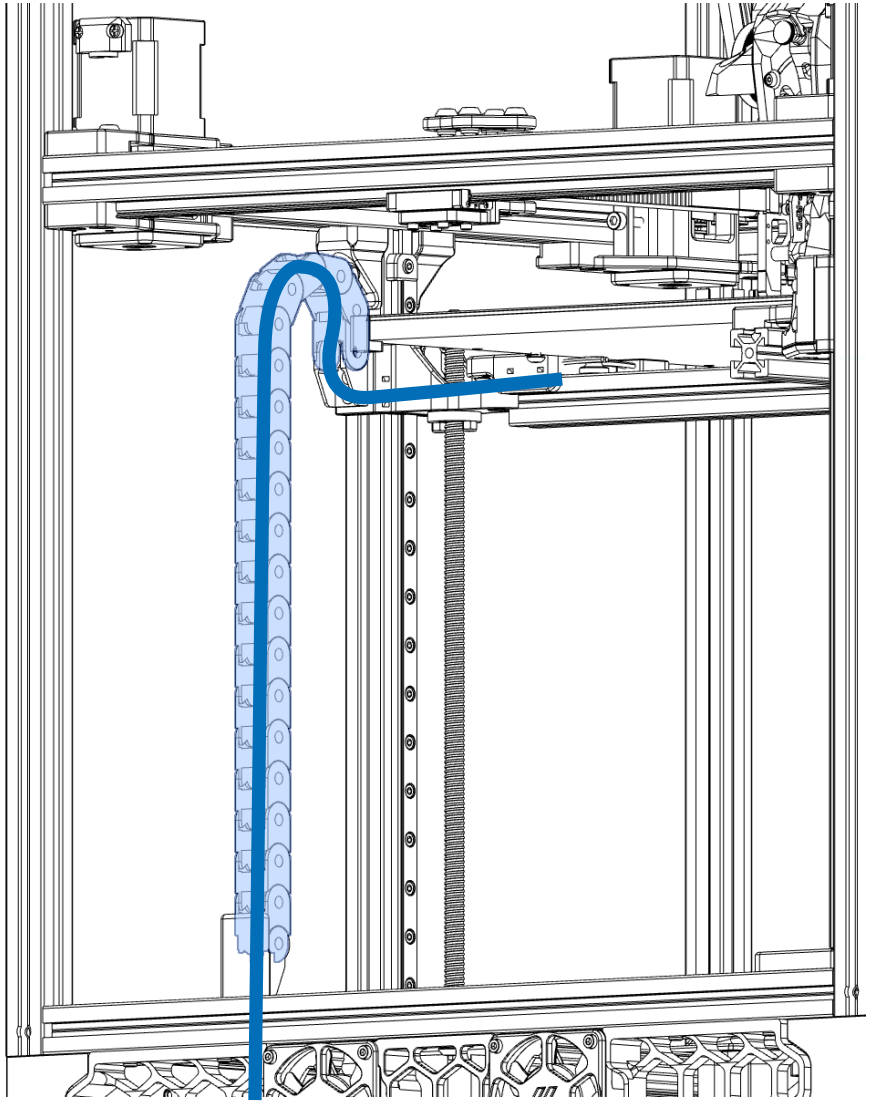

M3×6 FHCS
10×11 Drag chain head


Top
Front
Back




73mm


M3×6 FHCS
10×11 Drag chain head



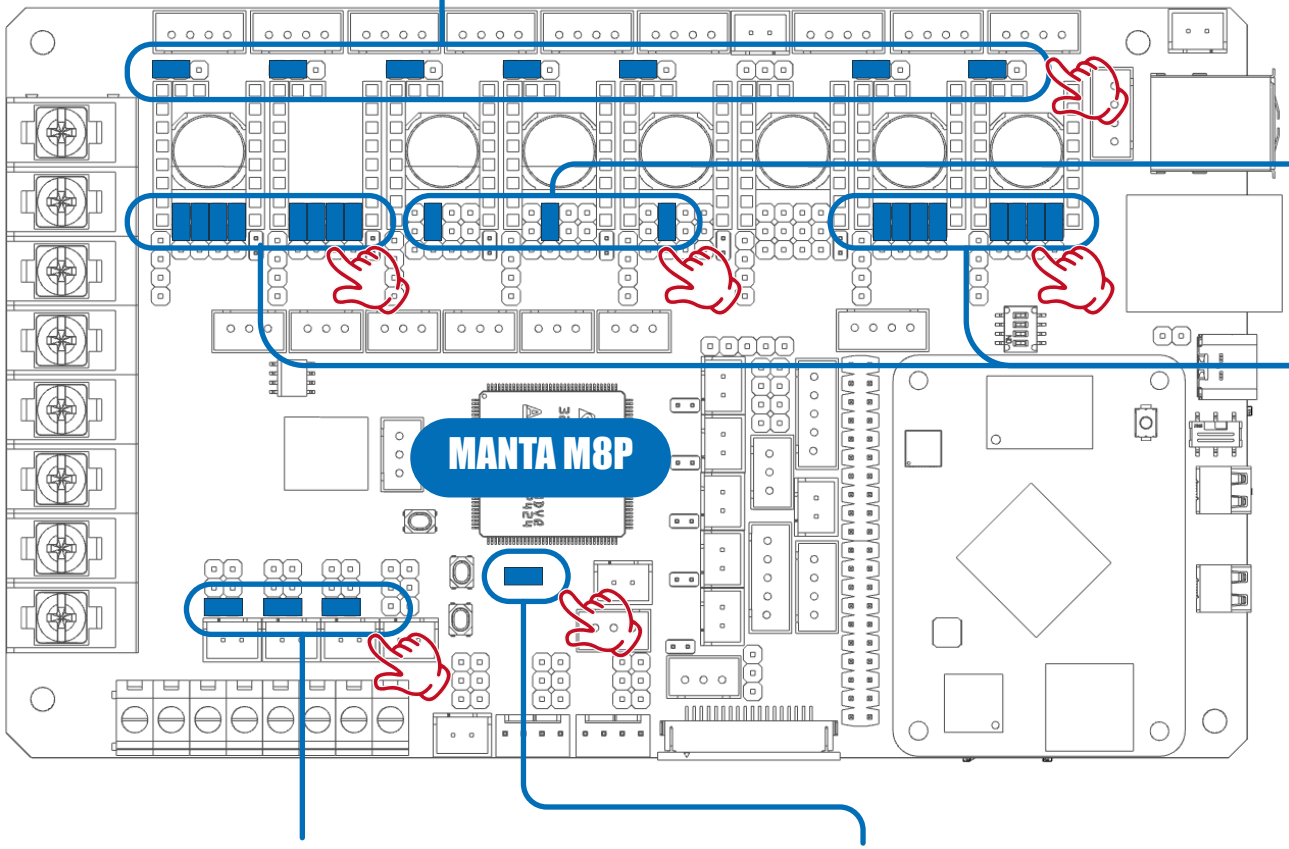
Installing Cables in the Drag Chain

Please note that the drag chain can be opened.
Use a small screwdriver or tweezers to open
the drag chain, then install the cables.
The hotbed cable path is shown in the diagram.

Waiting for the rendered image to fill...

Driver Voltage Selection

Set the drive voltage to independent power supply mode, as shown in the blue box.



TMC Drivers - UART Mode

For TMC2209, short the jumper for each as shown in the blue box

TMC Drivers - UART Mode

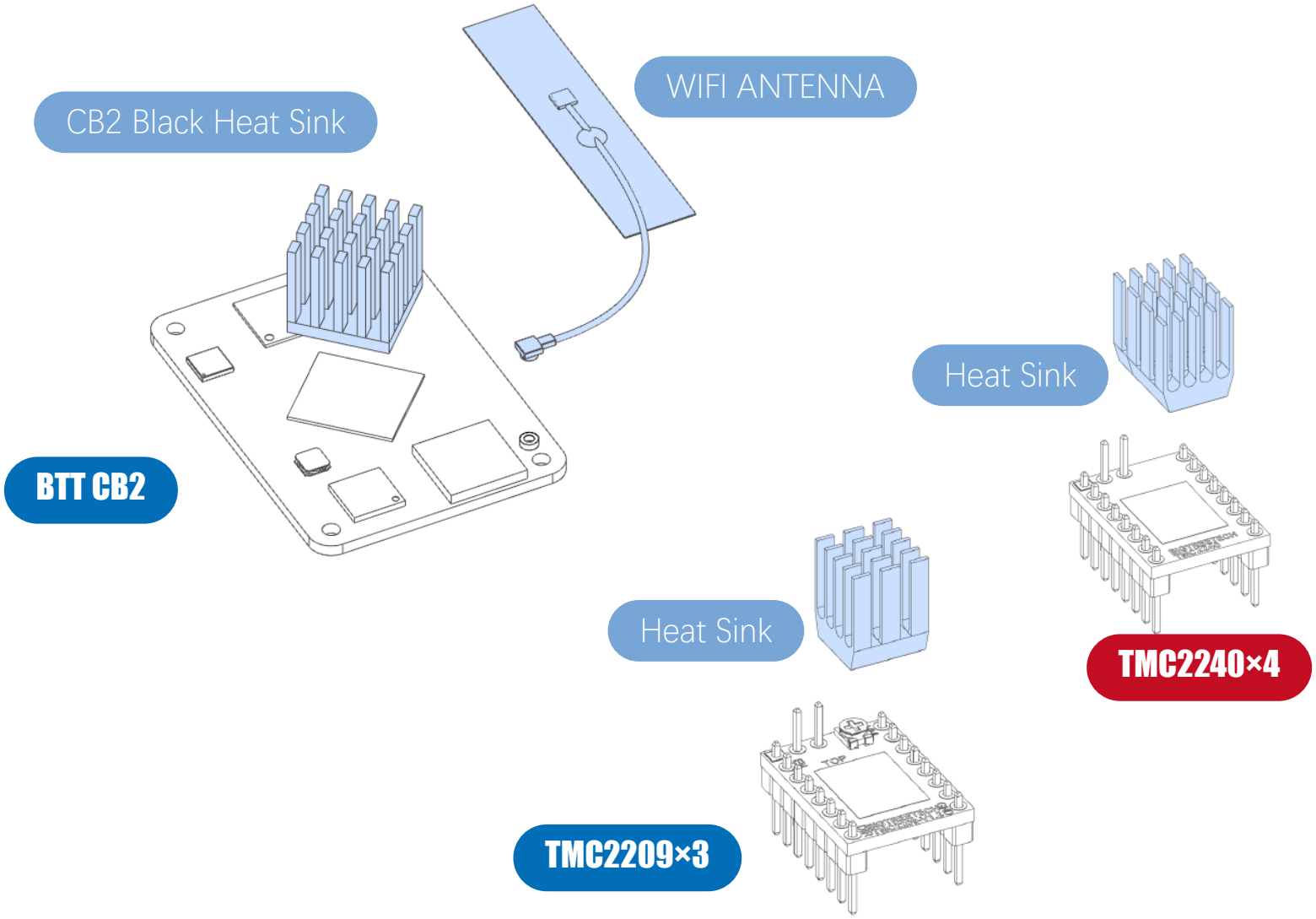
For TMC2240,TMC5160, short the jumper for each as shown in the blue box

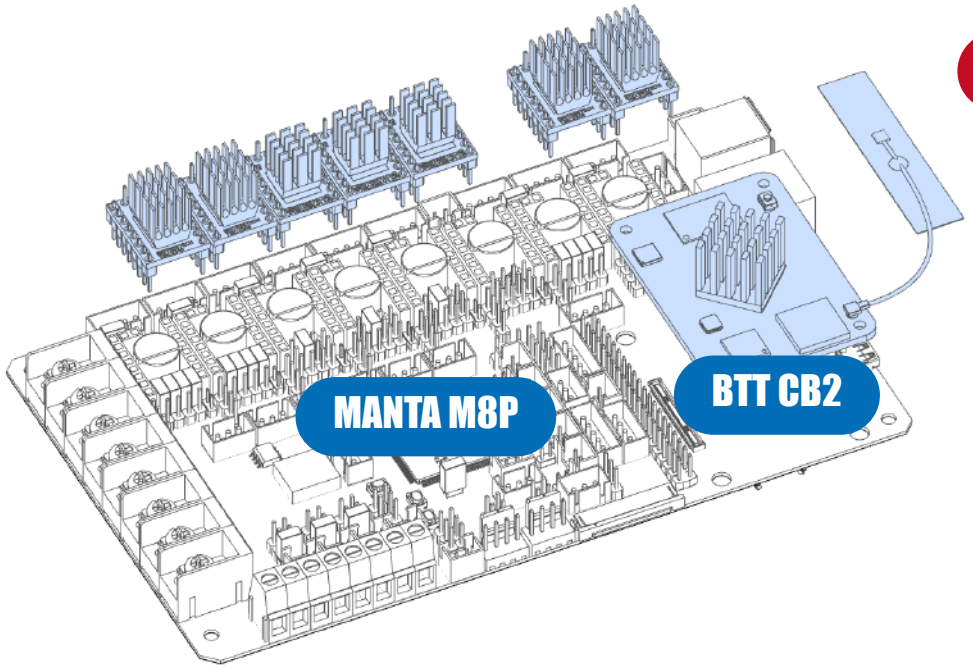
Setting Fan Output Voltage

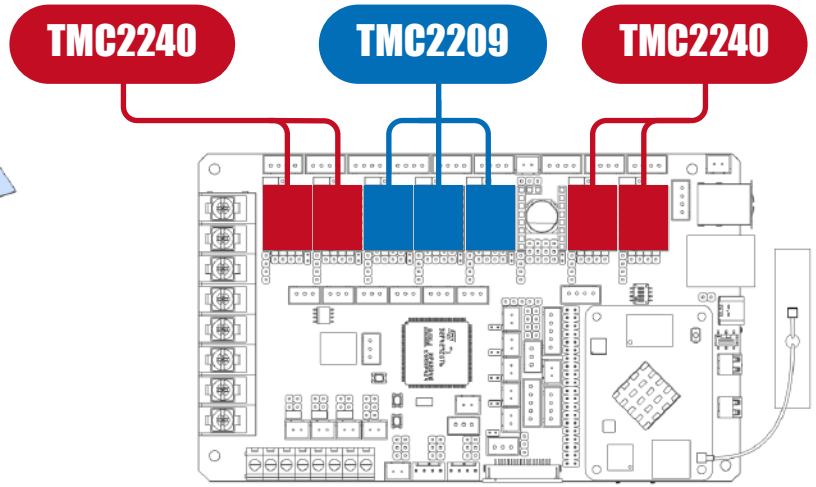
Insert the jumper here to set the fan output voltage to 24V.

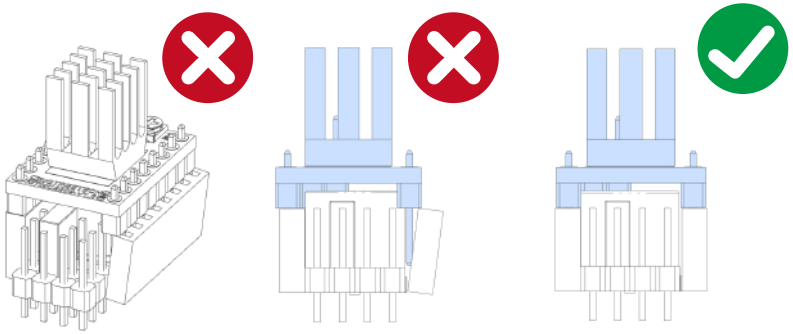
CAN-120R Jumper

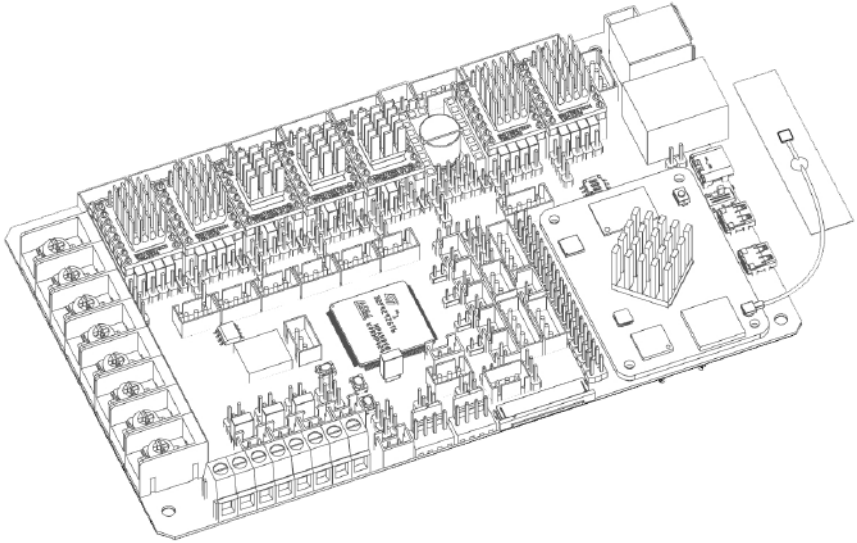
Insert the jumper here for the CAN-120R to enable proper CAN communication.


CB2 Black Heat Sink
WIFI ANTENNA
BTT CB2
Heat Sink
Heat Sink
TMC2240×4
TMC2209×3



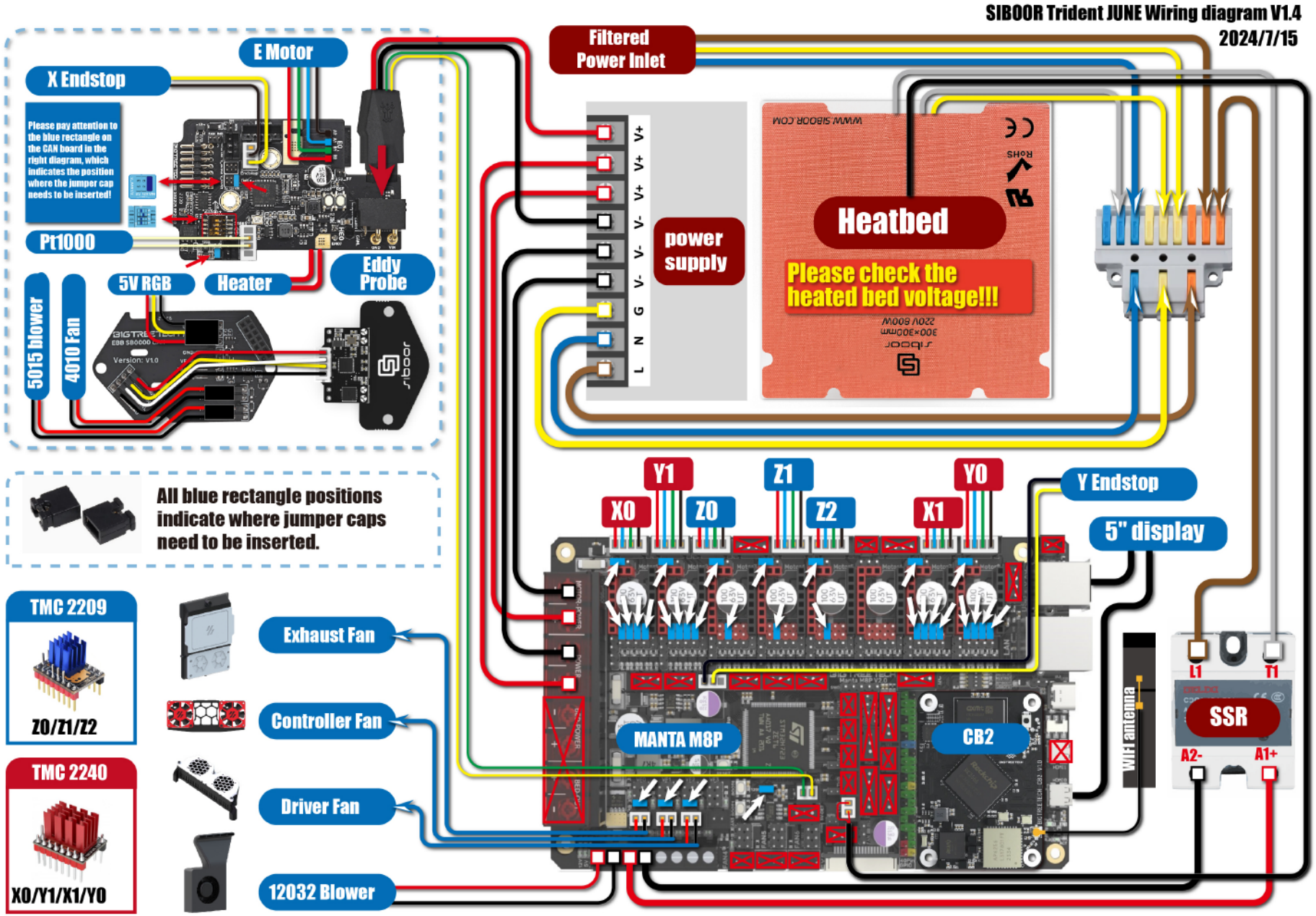


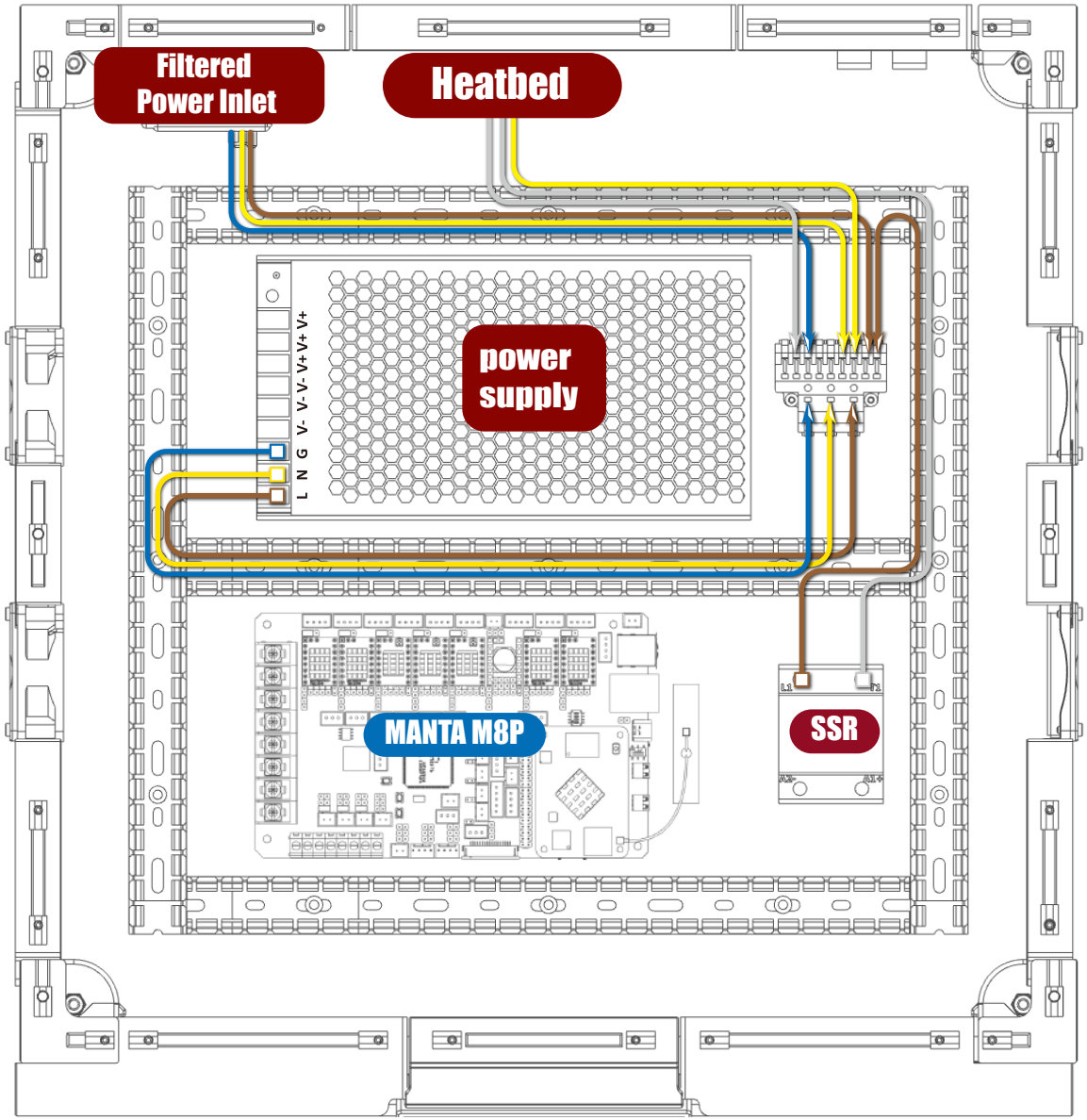


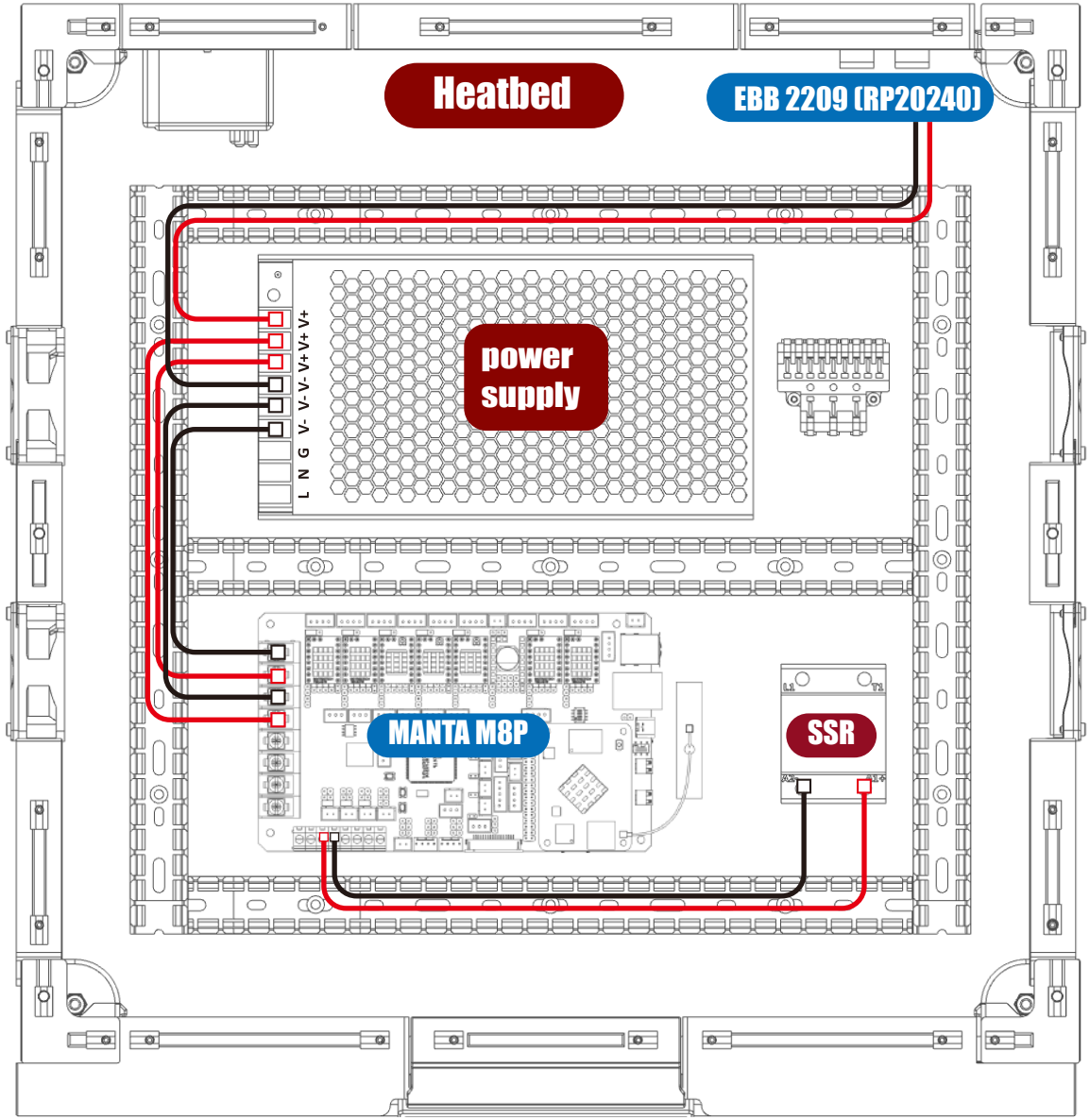


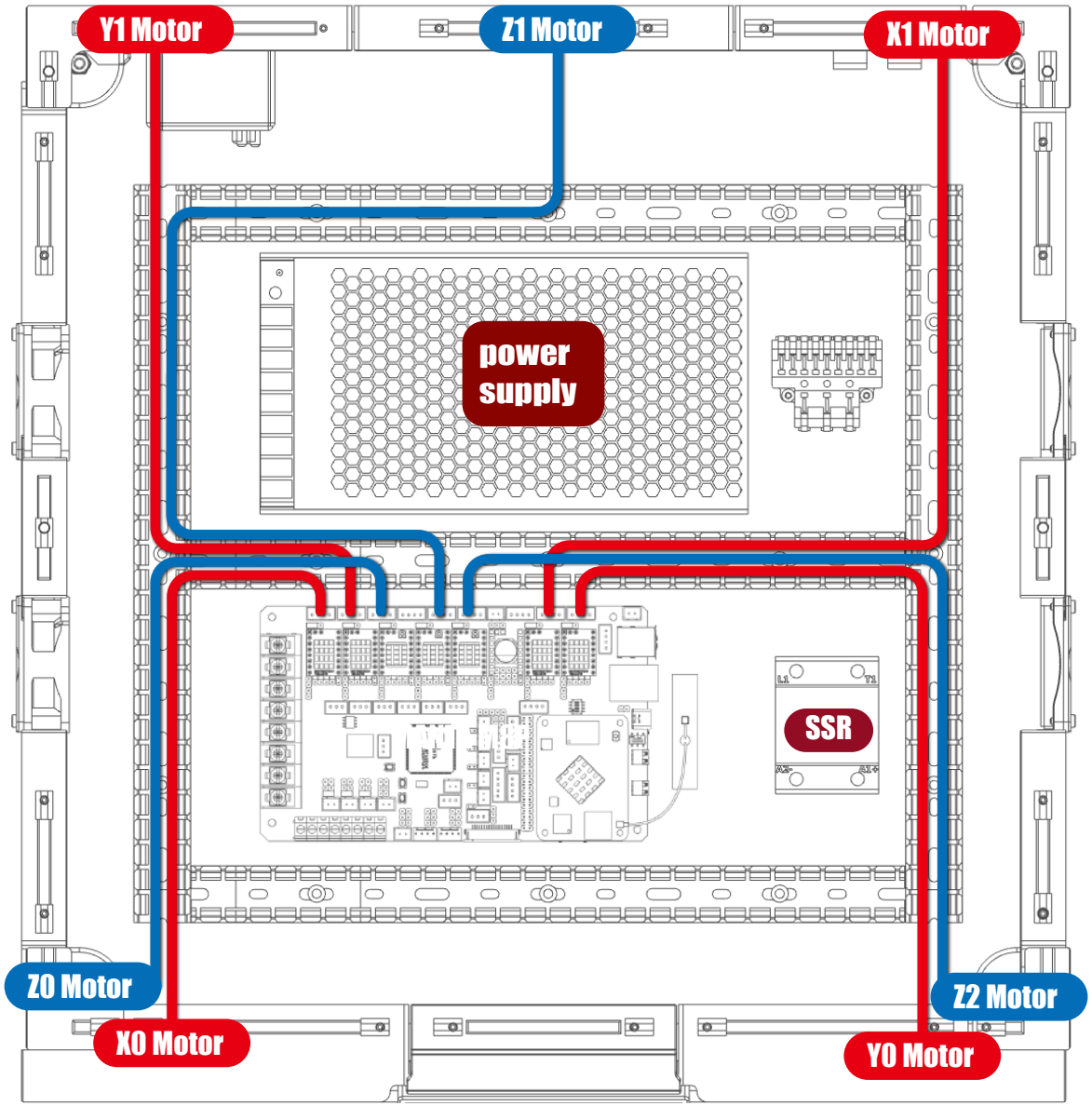
Checking Driver Position

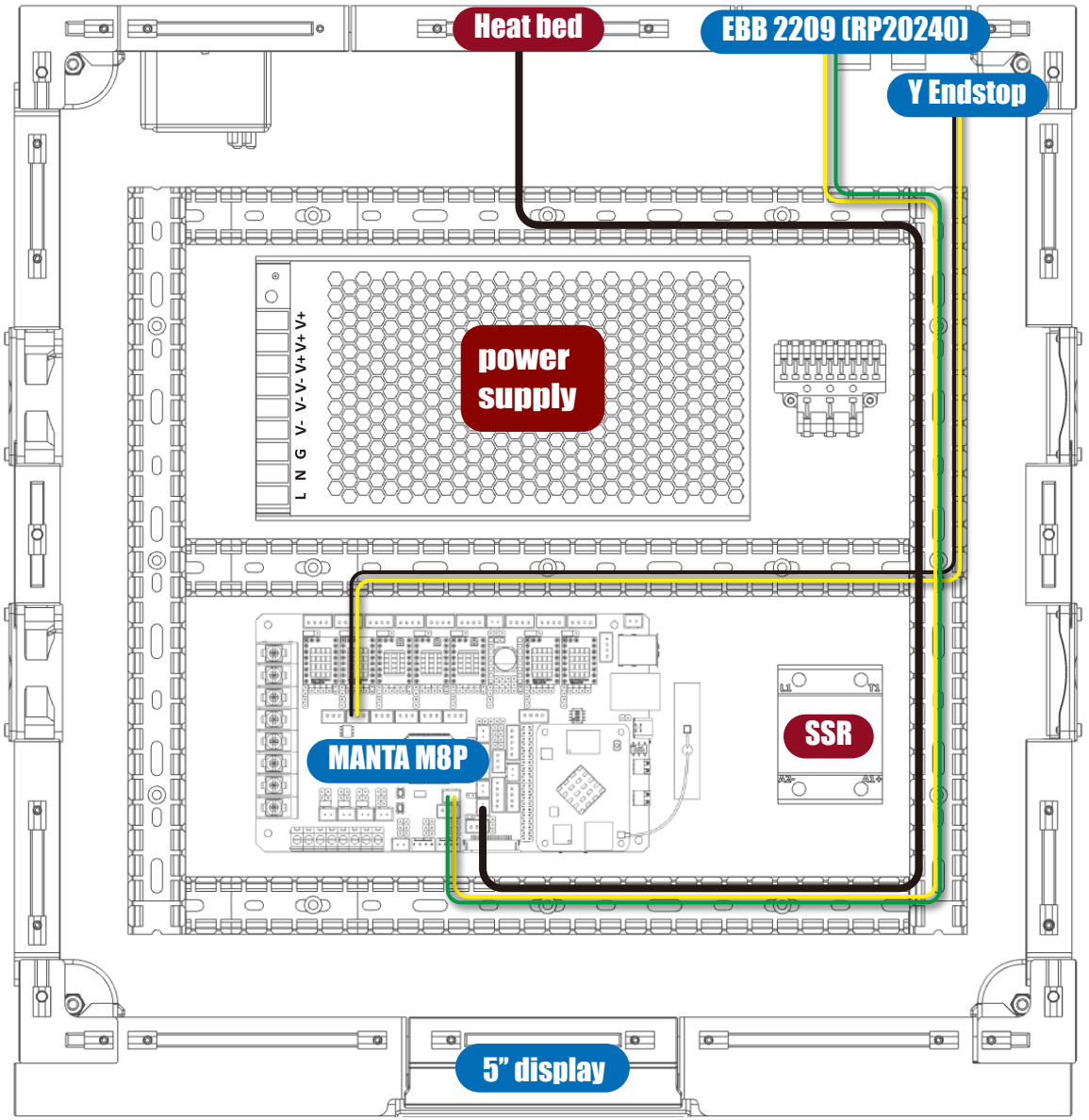
Check that the driver is inserted in the correct position to avoid short-circuiting the motherboard

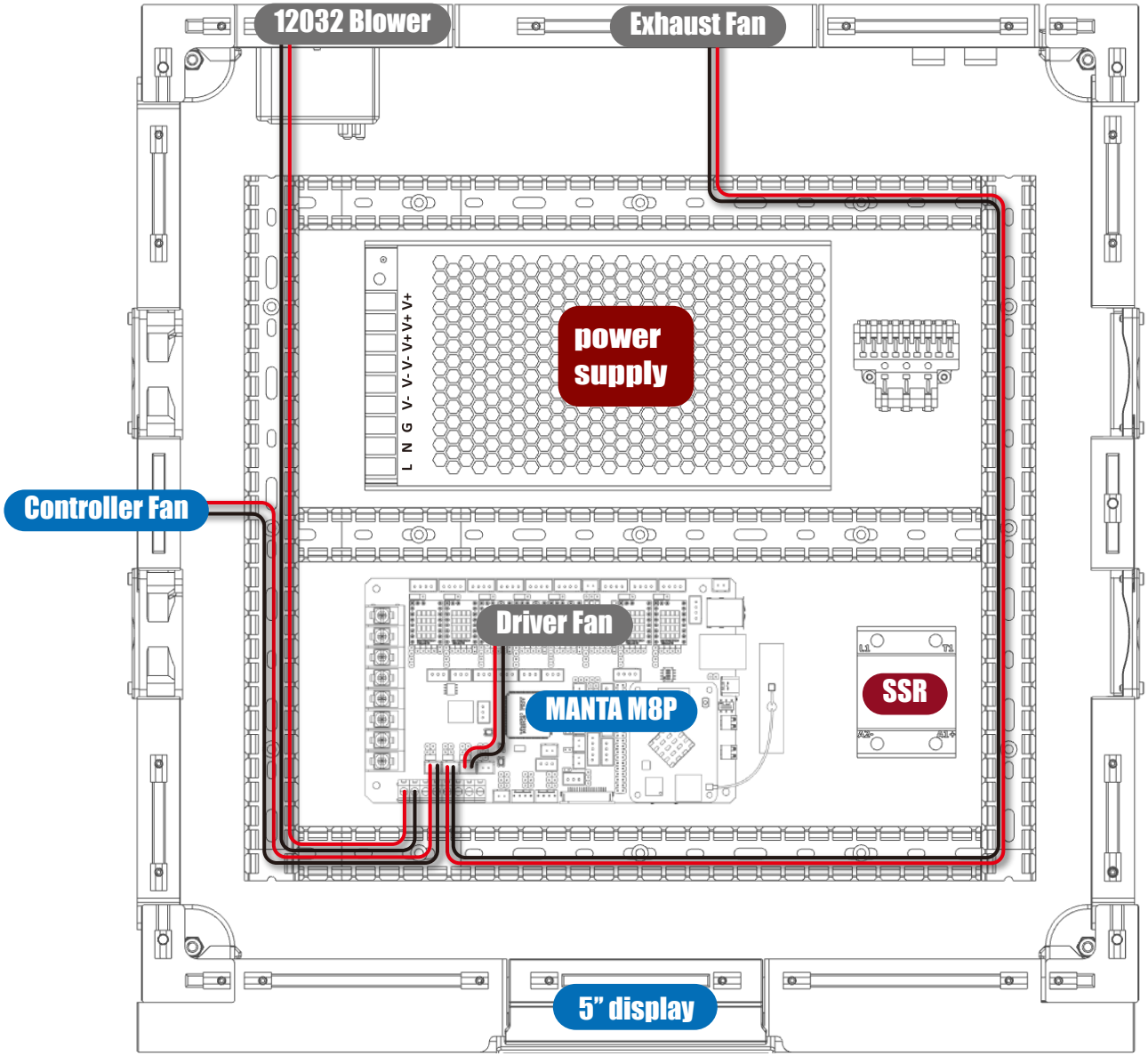

SIBOOR Trident JUNE Wiring diagram V1.4
2024/7/15
E Motor
X Endstop
Please pay attention to the blue rectangle on the CAN board in the right diagram, which indicates the position where the jumper cap needs to be inserted!
Pt1000
5V RGB
Heater
Eddy Probe
5015 blower
4010 fan
Filtered Power Inlet
power supply
V+ V+ V+ V- V- V- G N L
Heatbed
Please check the heated bed voltage!!!
All blue rectangle positions indicate where jumper caps need to be inserted.
TMC 2209
Z0/Z1/Z2
TMC 2240
X0/Y1/X1/Y0
Exhaust Fan
Controller Fan
Driver Fan
12032 Blower
Y1
Z1
Y0
X0
Z0
Z2
X1
Y Endstop
5" display
MANTA M8P
CB2
WiFi antenna
SSR
L1
T1
A2-
A1+


Filtered
Power Inlet
Heatbed
power
supply
L N G V- V- V+ V+ V+
MANTA M8P
SSR


Heatbed
EBB 2209 (RP20240)
power supply
L N G V- V- V+ V+ V+
MANTA M8P
SSR

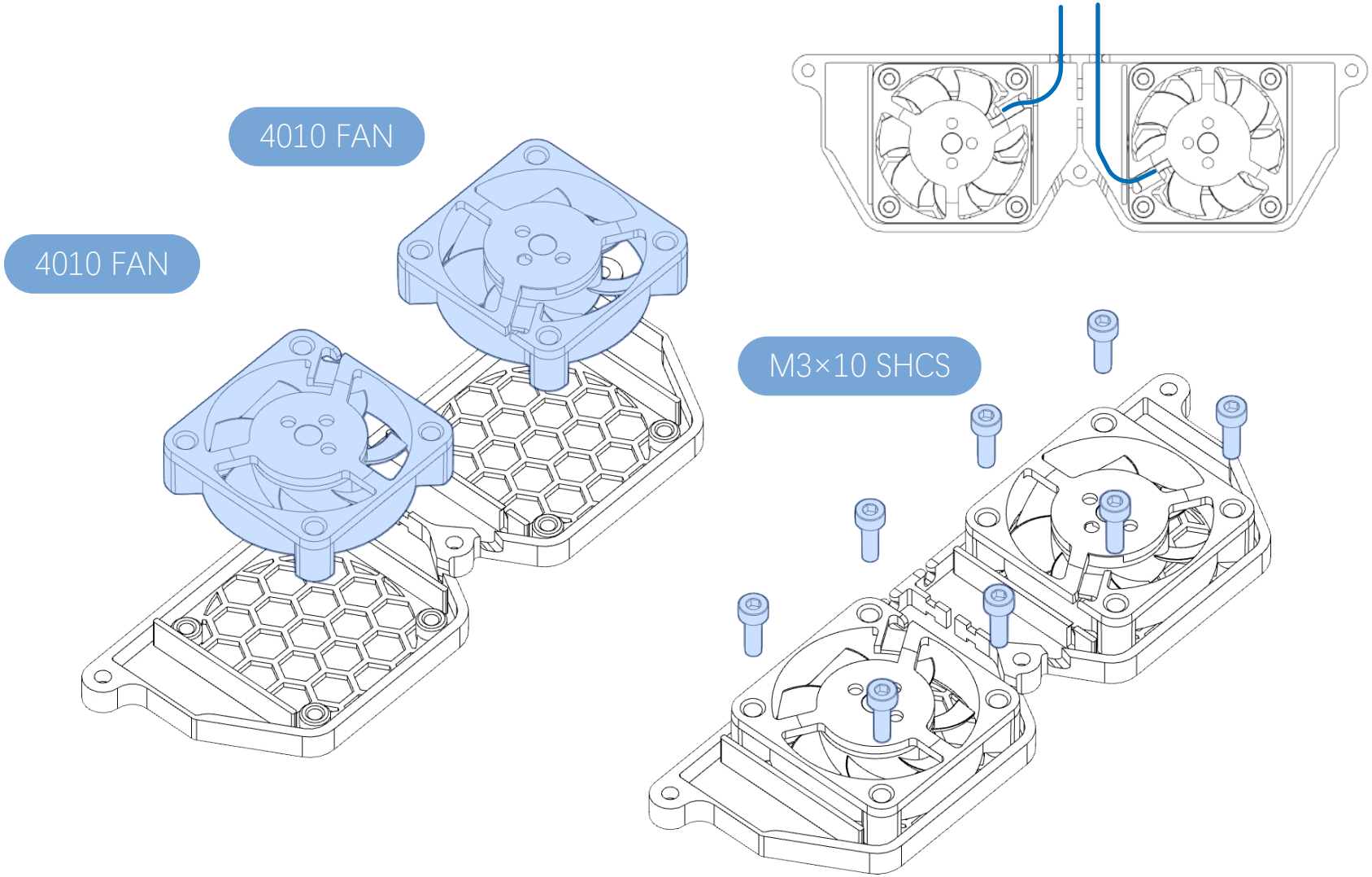

Y1 Motor
Z1 Motor
X1 Motor
power supply
SSR
Z0 Motor
X0 Motor
Y0 Motor
Z2 Motor

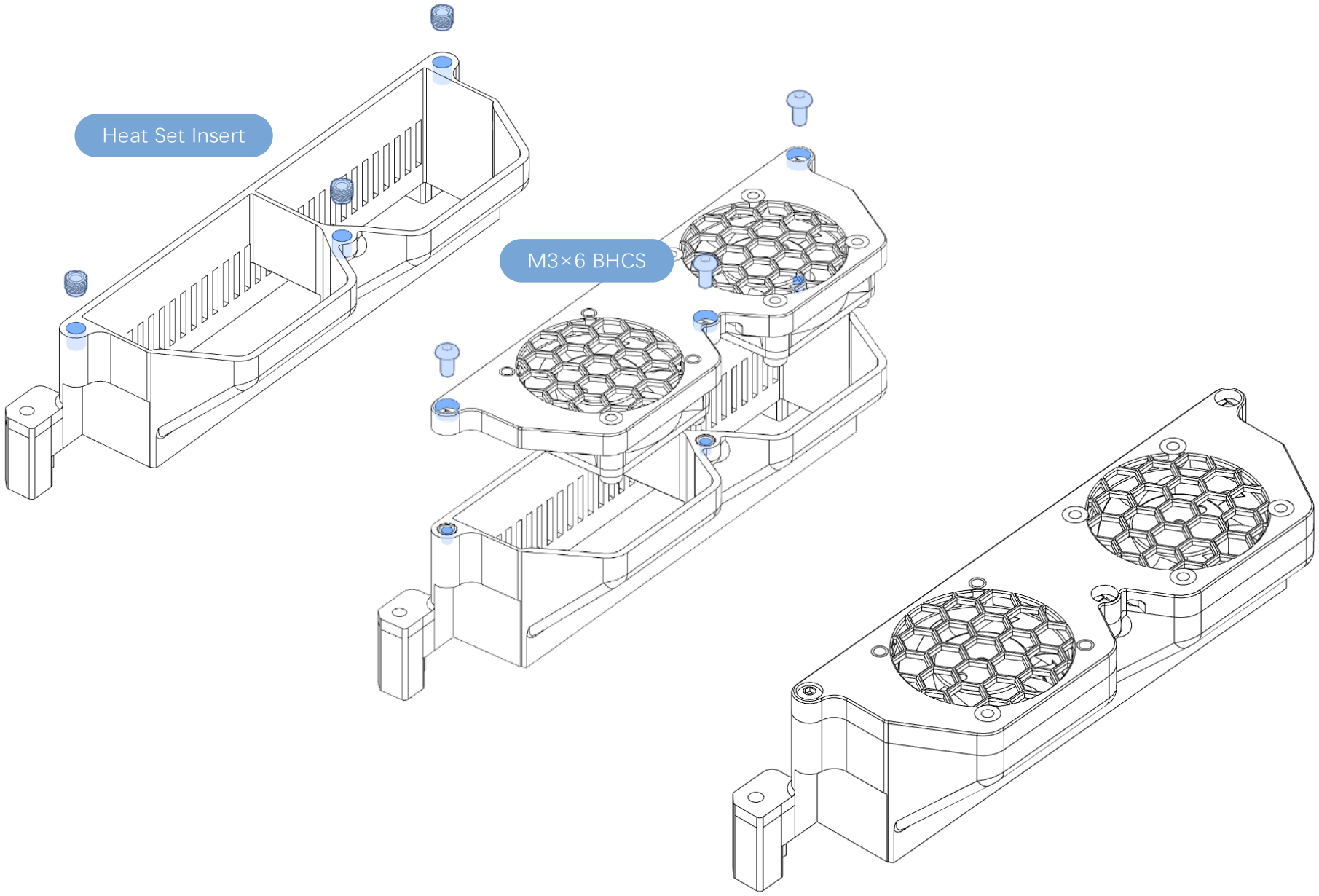

Heat bed
EBB 2209 (RP20240)
Y Endstop
power supply
L N G V- V- V+ V+ V+
MANTA M8P
SSR
5” display



Gray Rectangle Representation

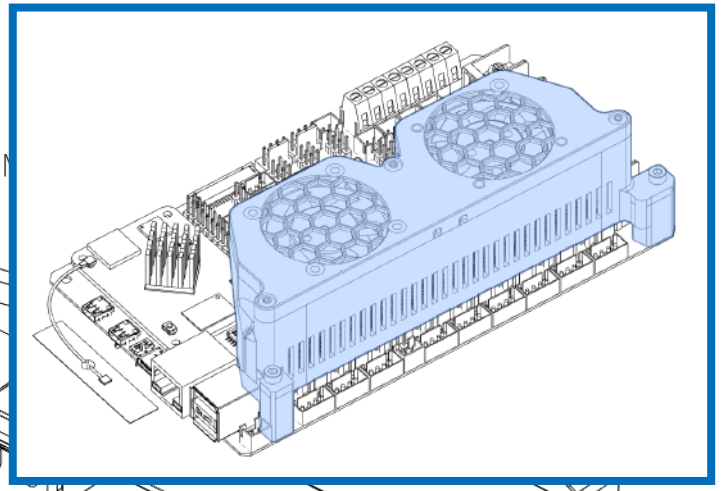
The gray rectangle symbolizes parts that have not yet been assembled in the current progress, but are shown in advance for wiring demonstration purposes.

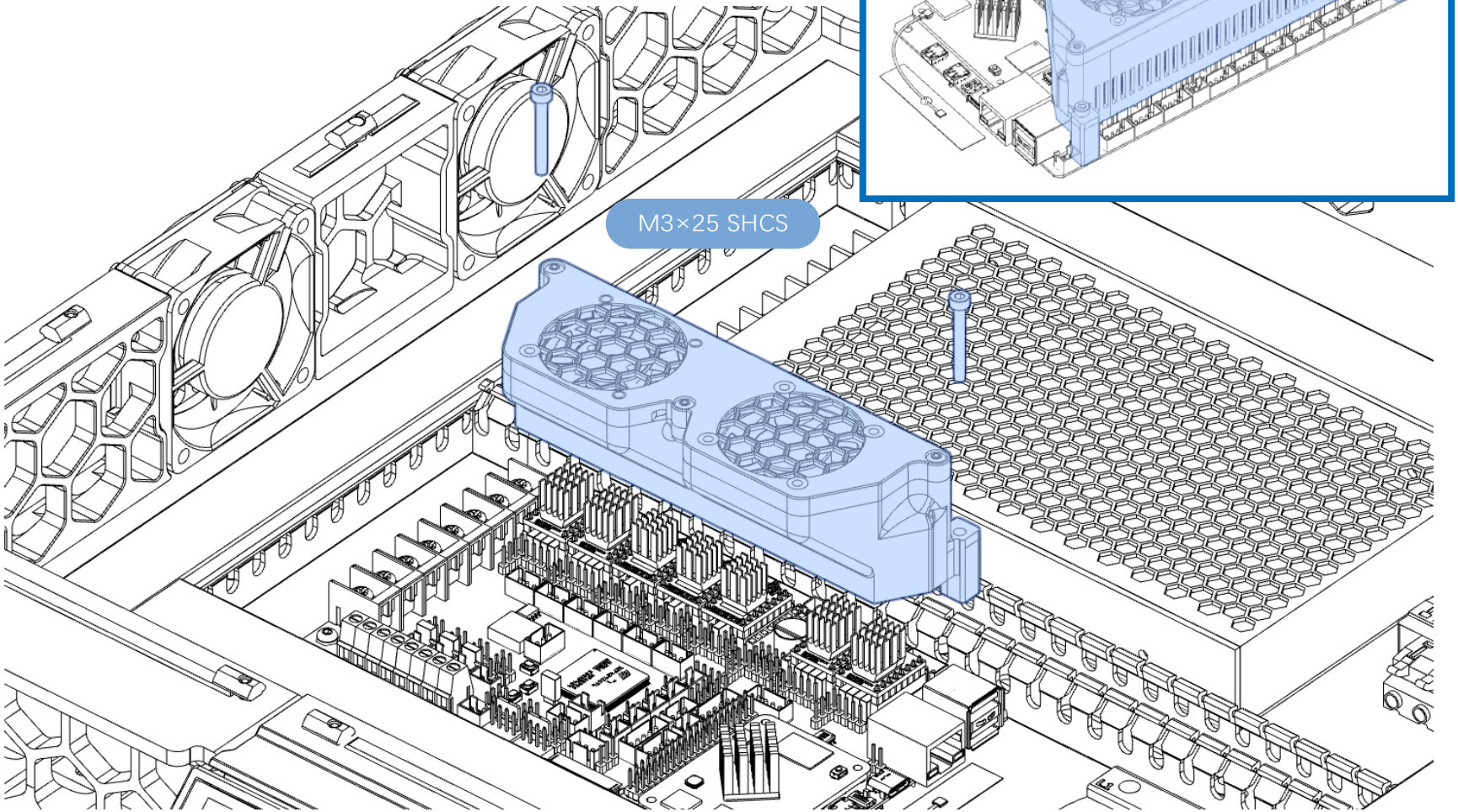

4010 FAN
4010 FAN
M3×10 SHCS

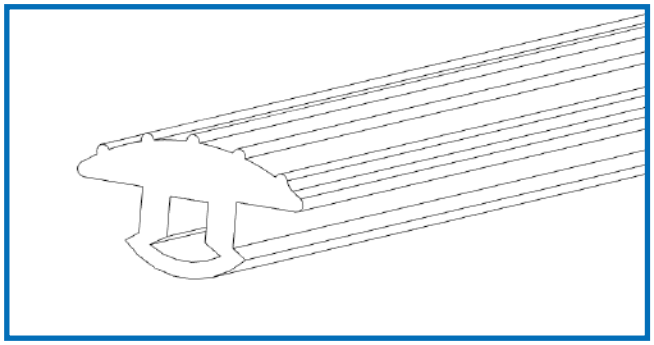

Heat Set Insert
M3×6 BHCS

Mounting the Drive Heatsink Module

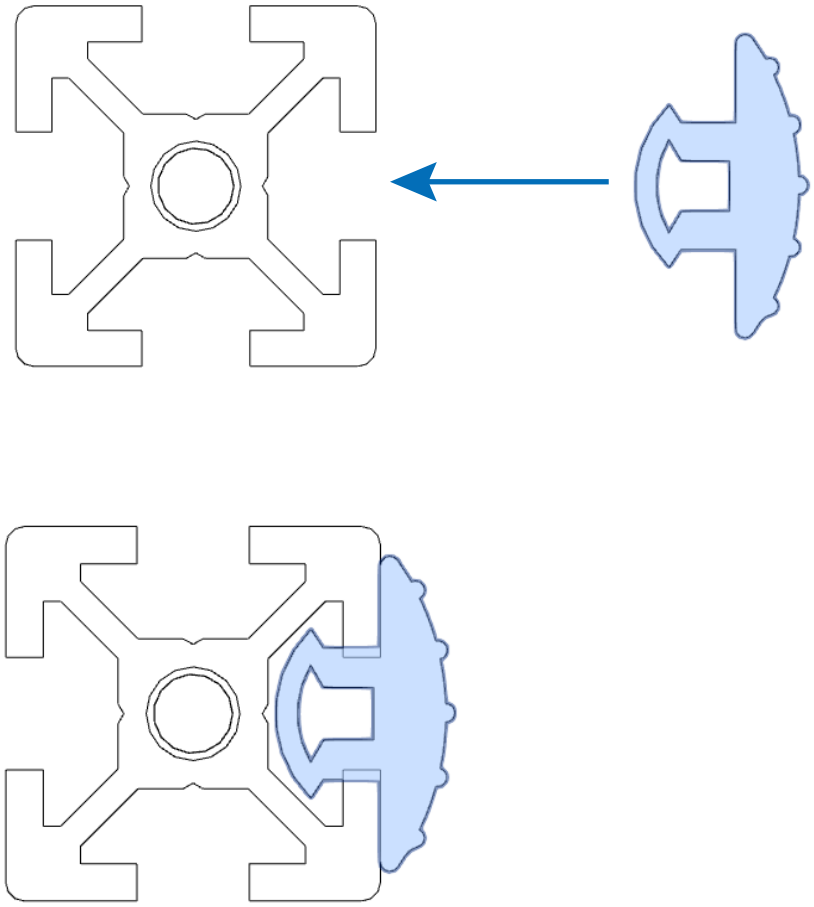
Remove the two M3×6 BHCS screws used to secure the mainboard,
then use M3×25 SHCS screws to mount the drive heatsink module onto the M

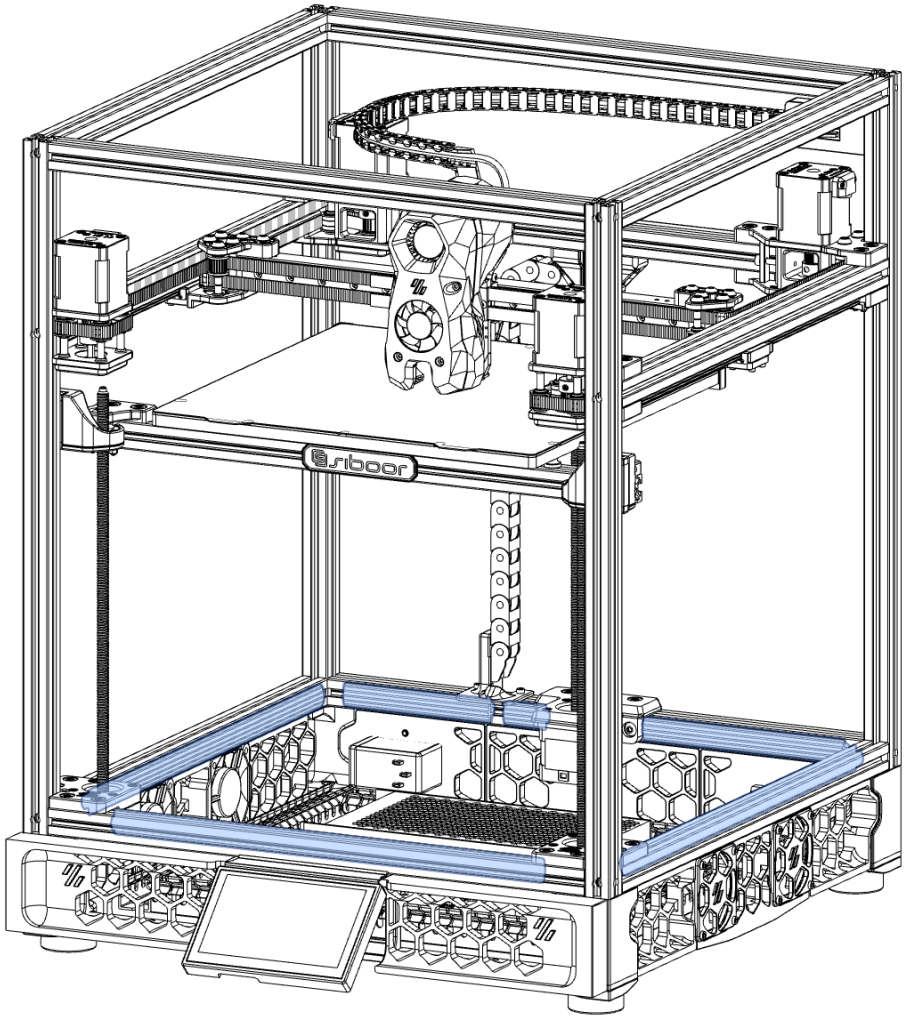


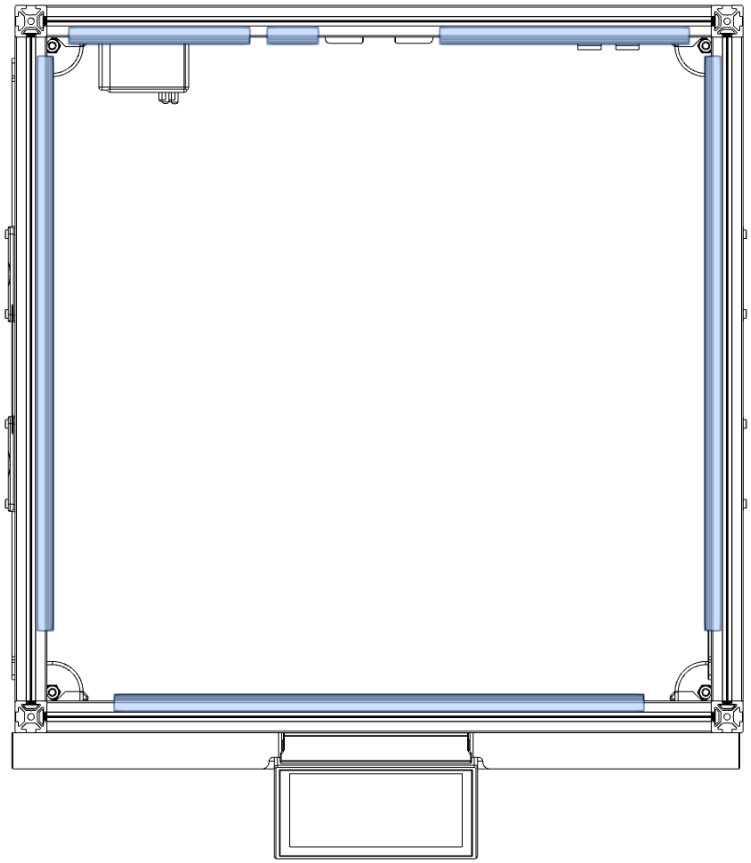




Flat Anti-Slip Strip

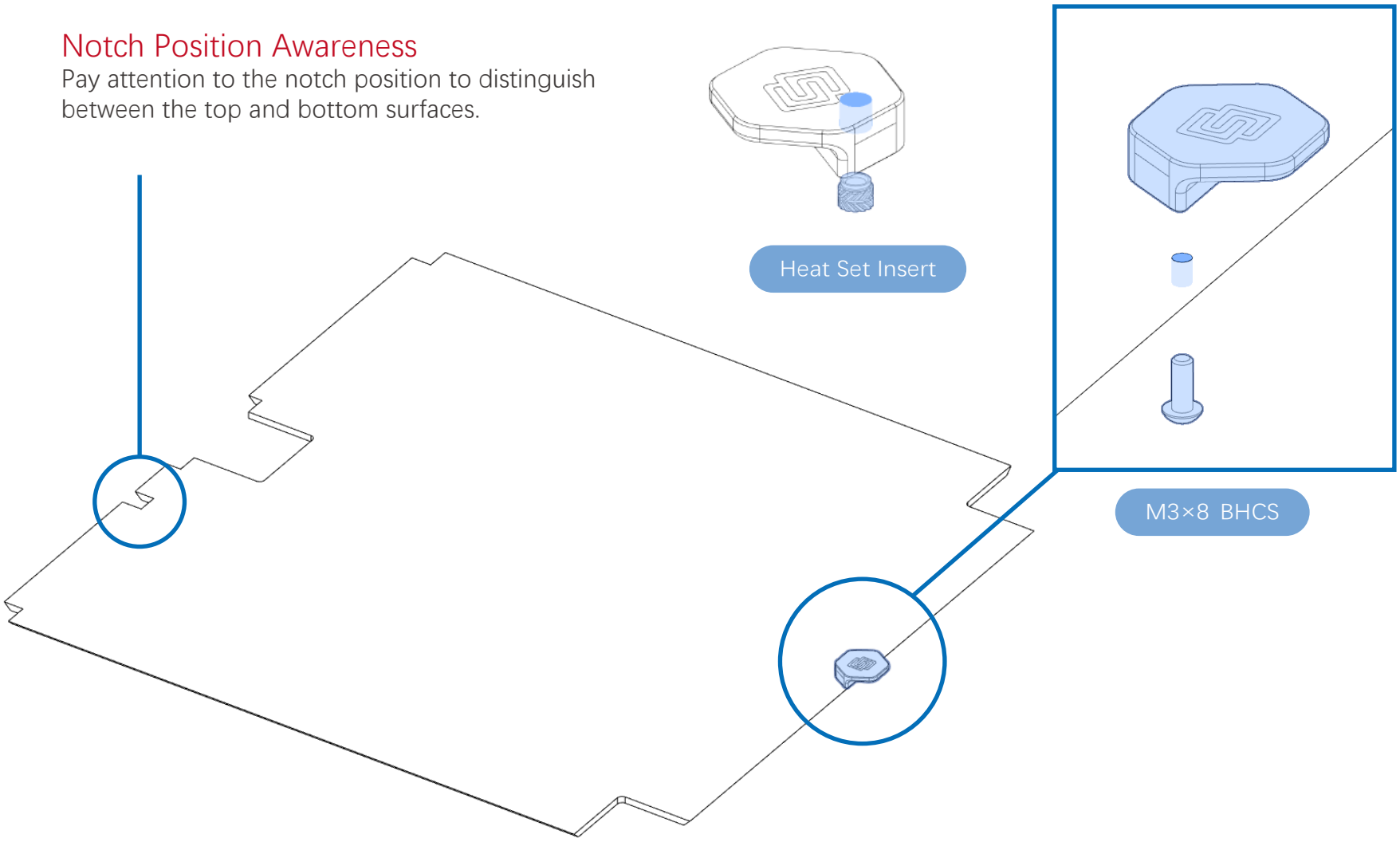



siboor

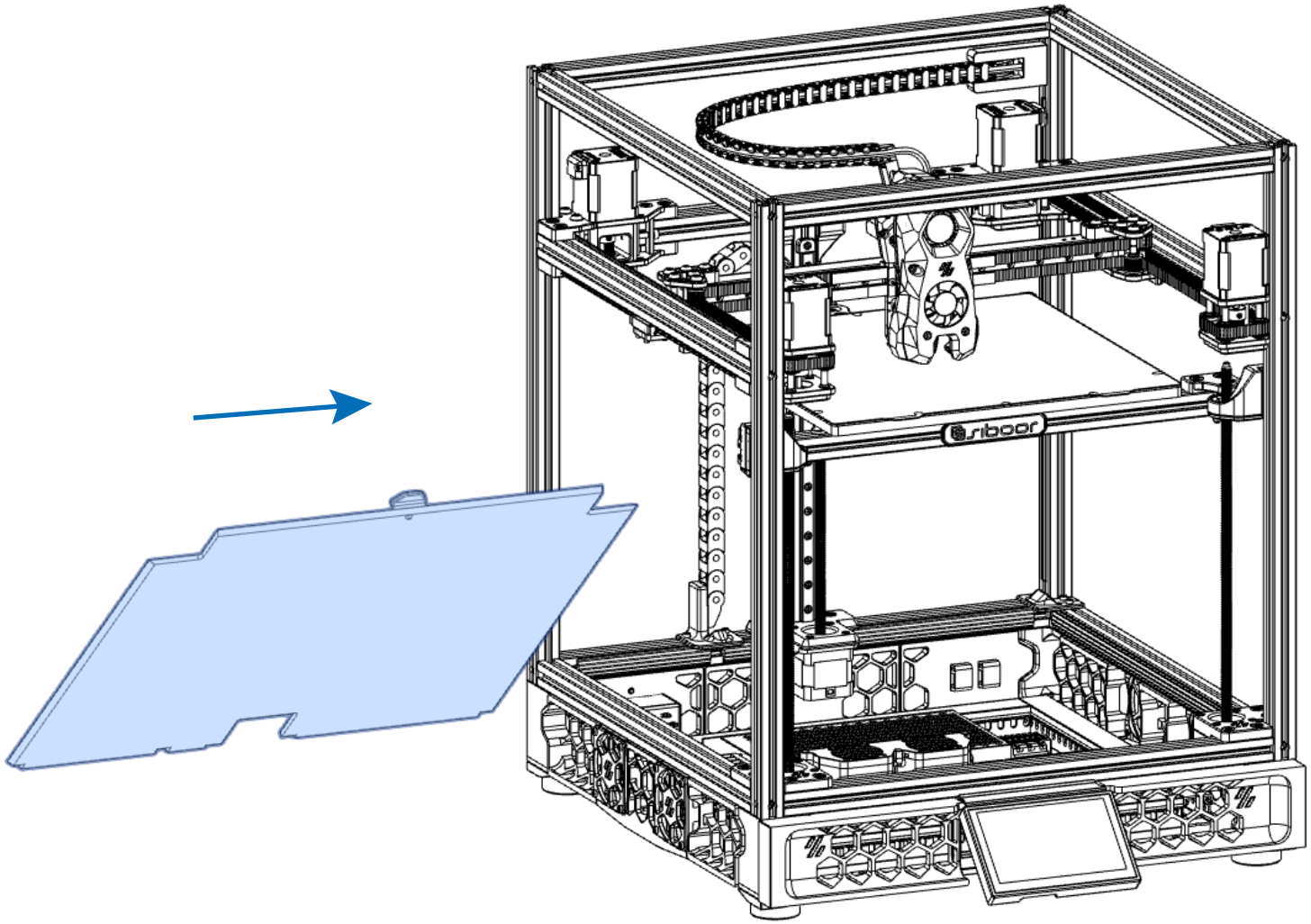


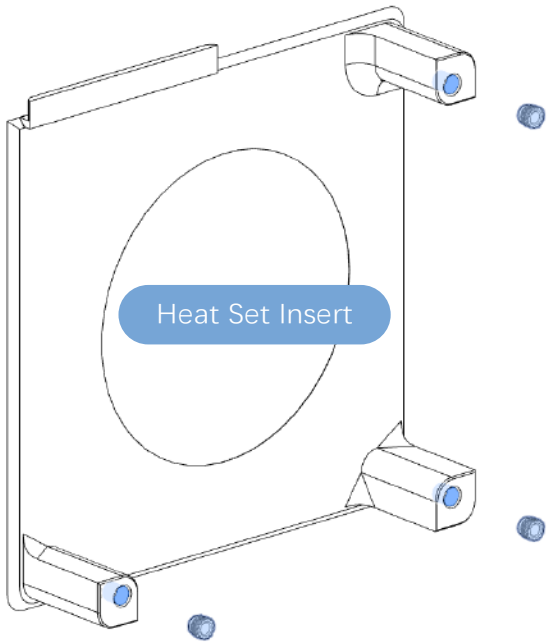
Notch Position Awareness

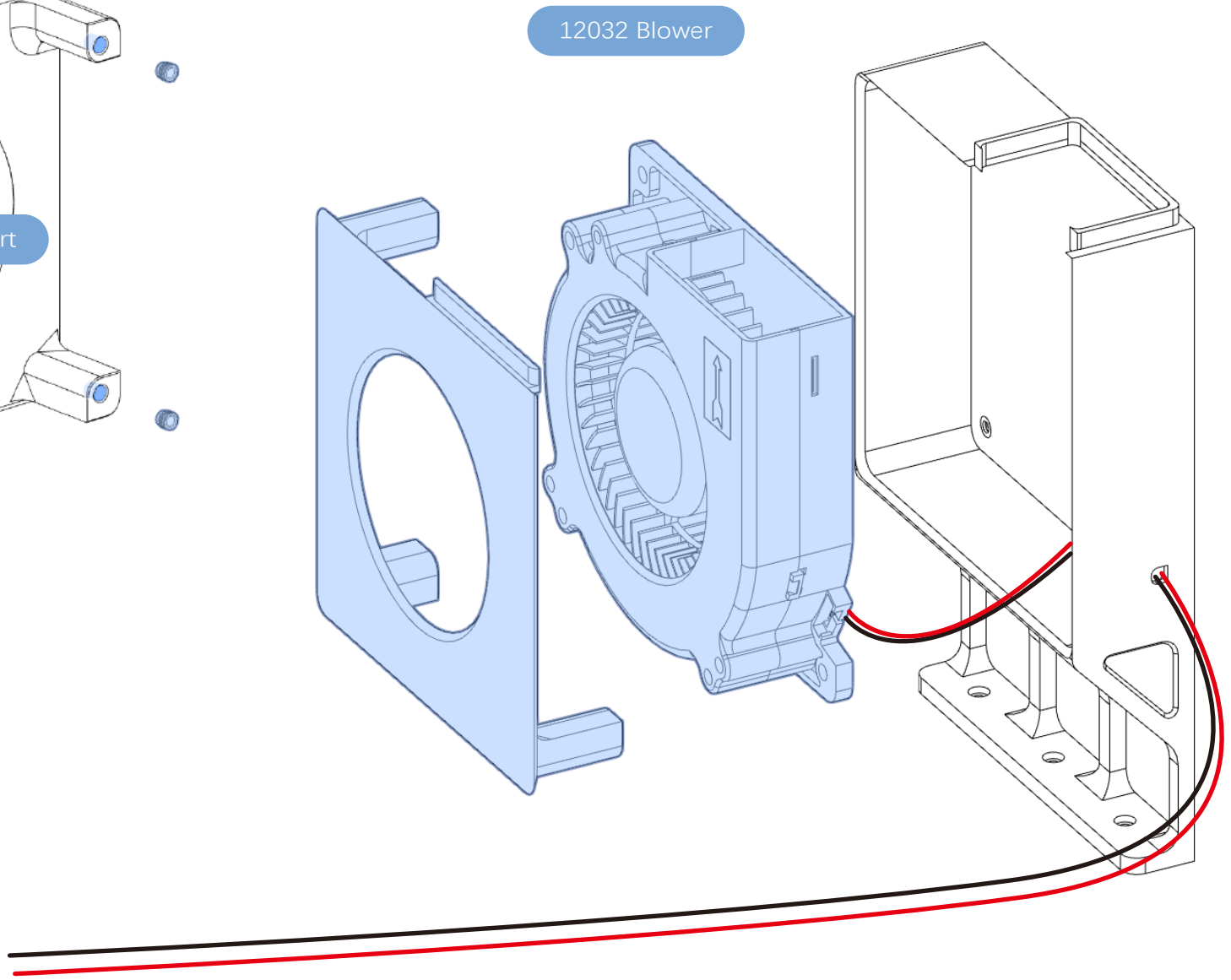
Pay attention to the notch position to distinguish between the top and bottom surfaces.

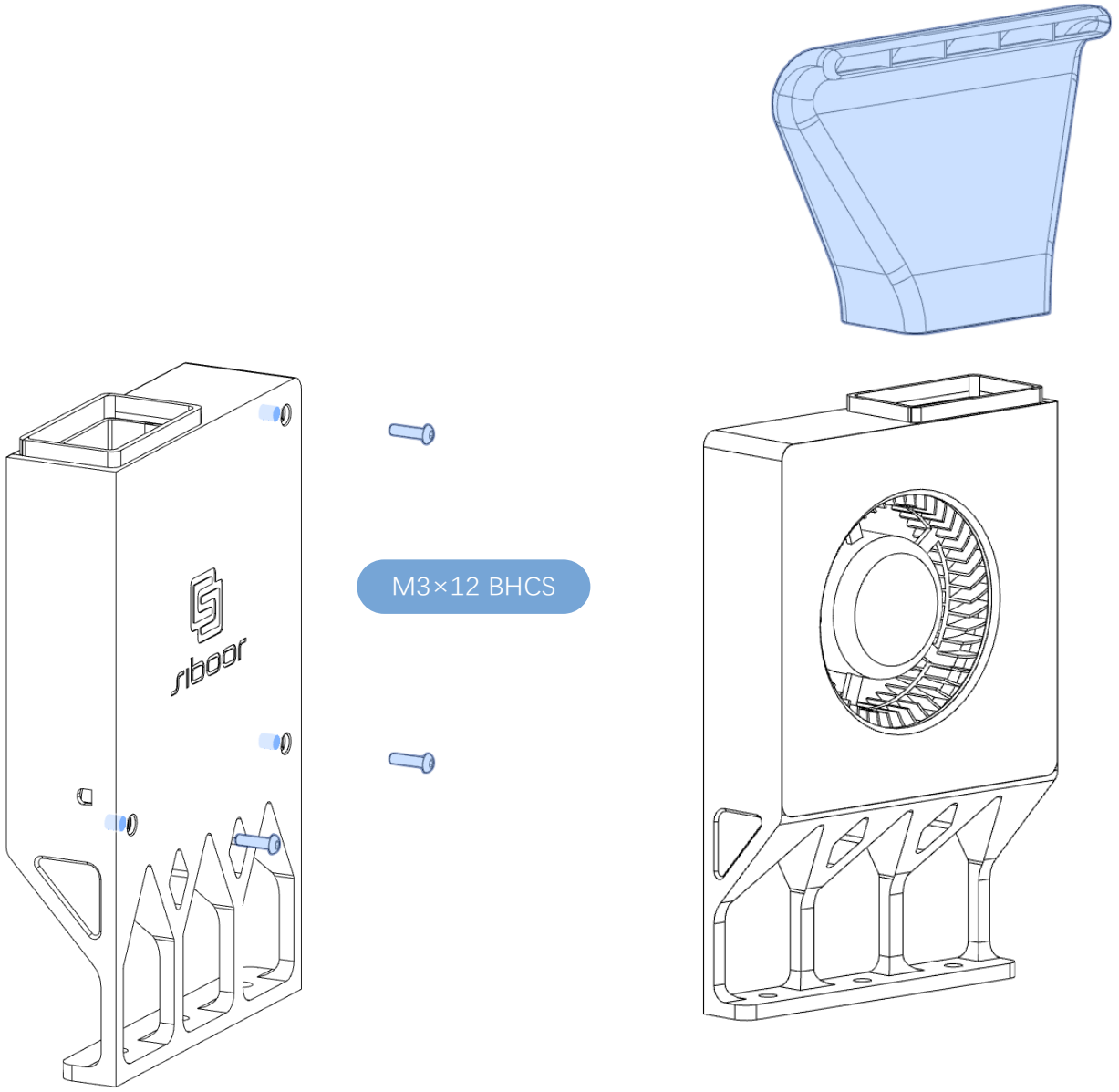


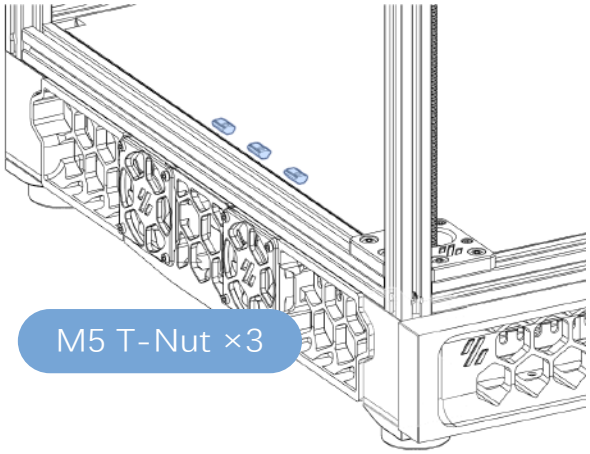
It's pretty cool, right? We can open the electrical compartment without flipping the printer, and the rubber Flat Anti-Slip Strip also provides a good sealing effect.

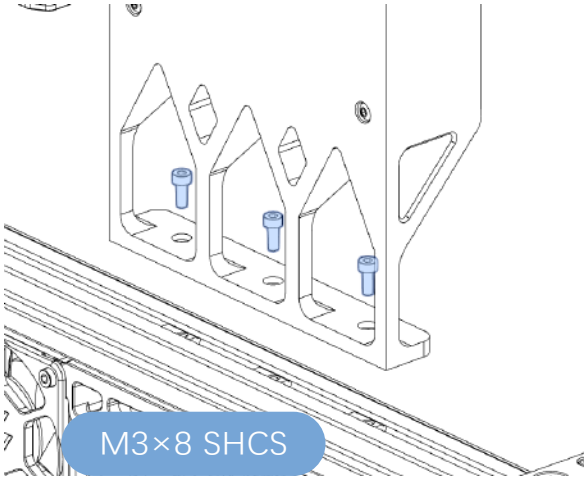


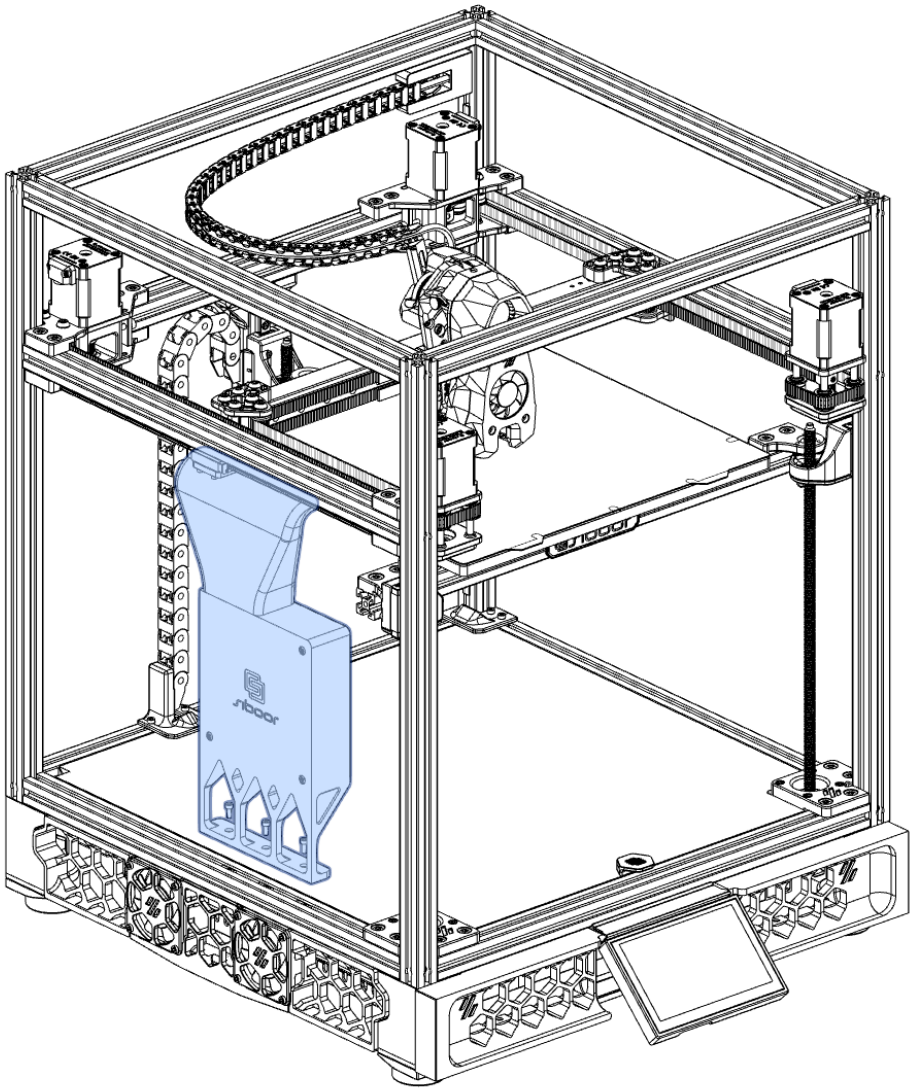

Heat Set Insert

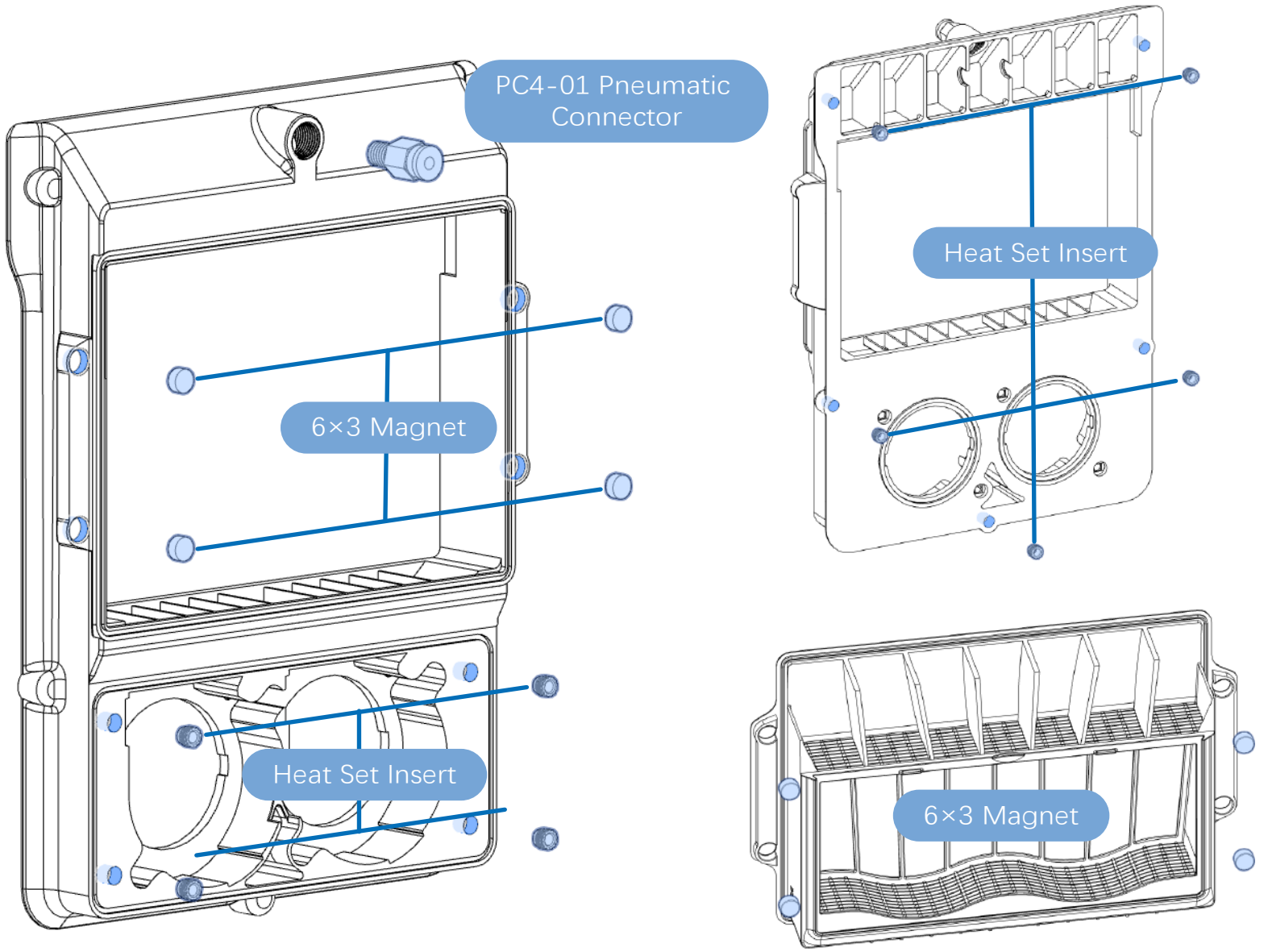

12032 Blower

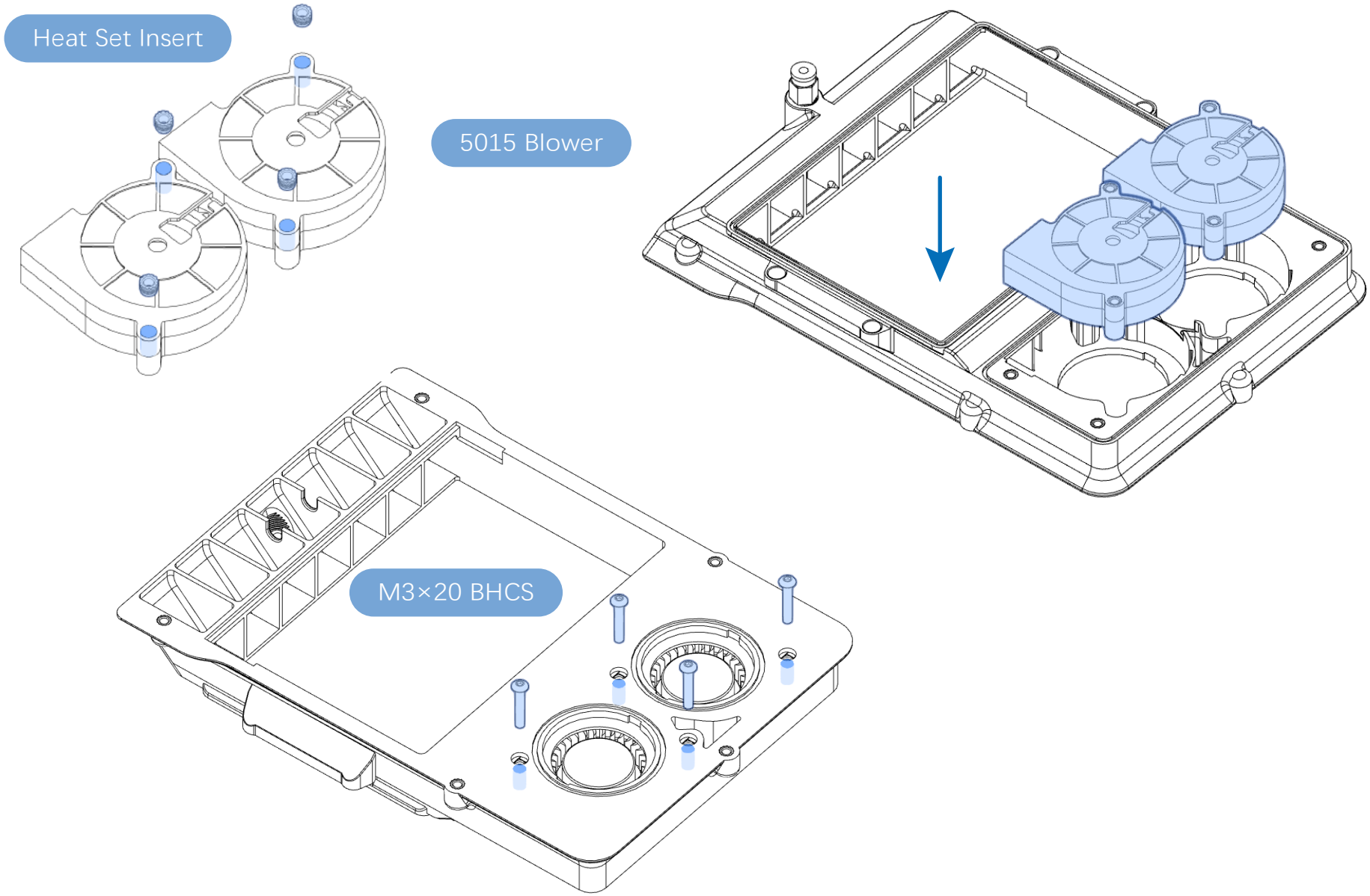

M3×12 BHCS

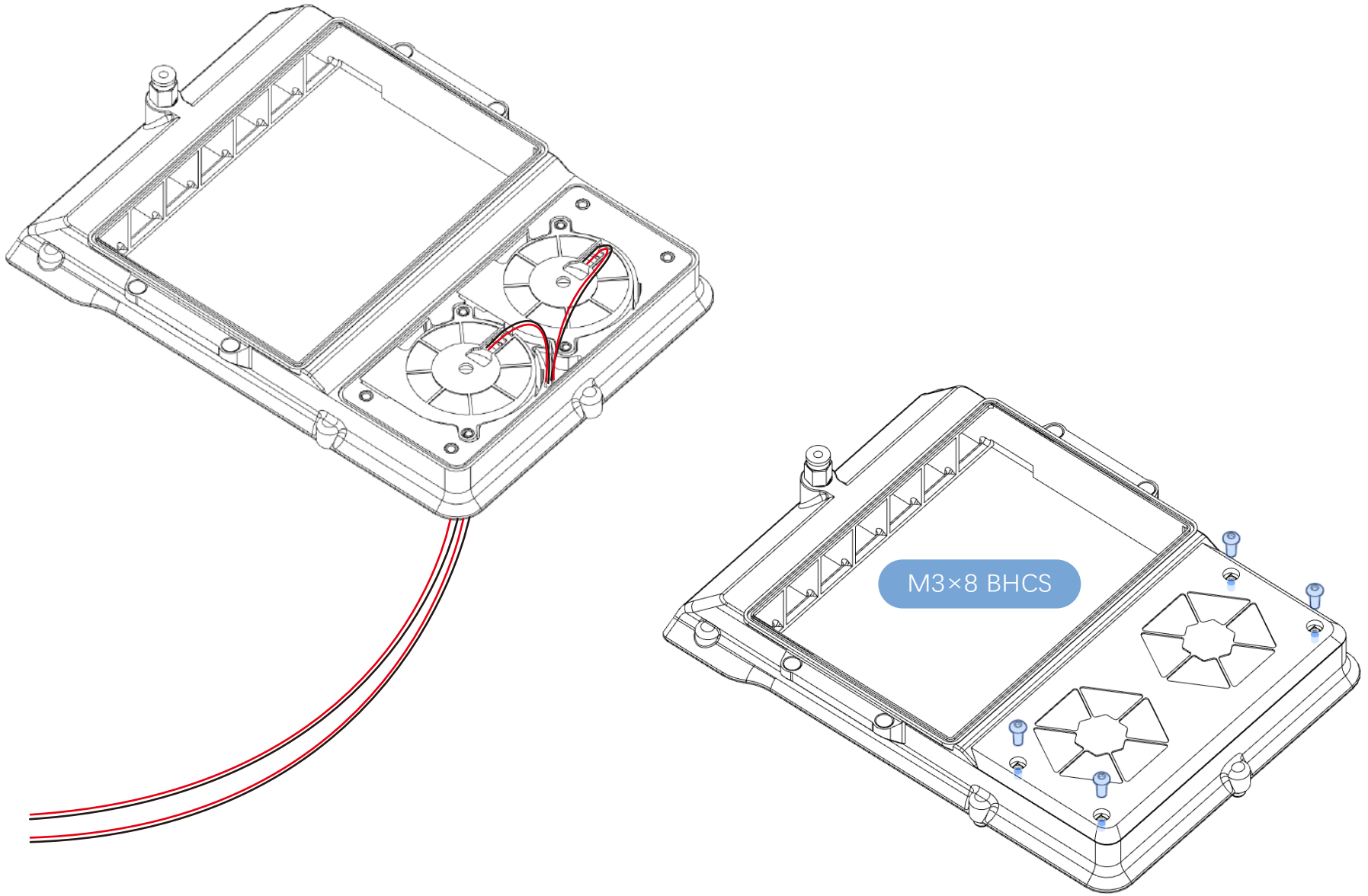

M5 T-Nut ×3

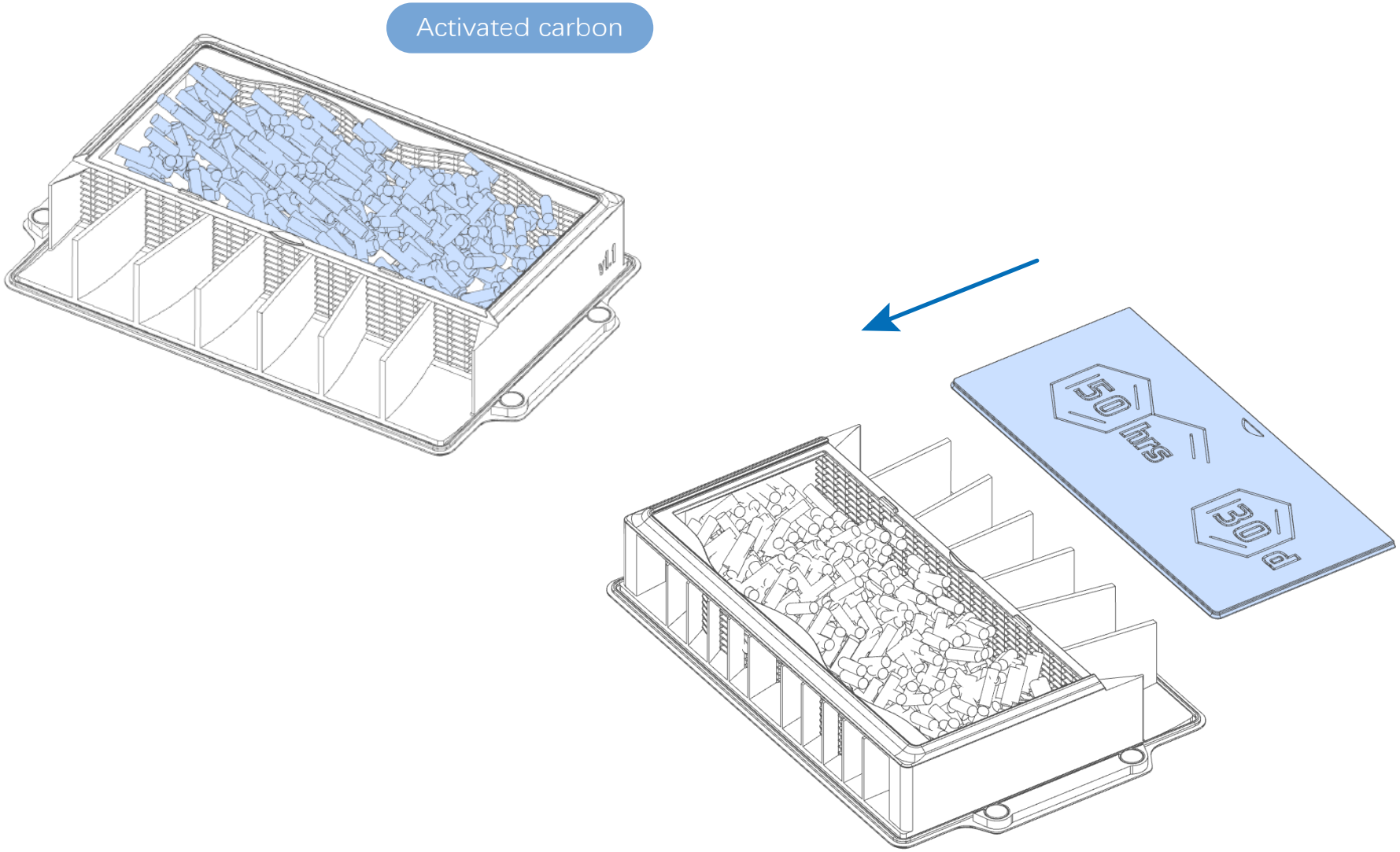

M3×8 SHCS

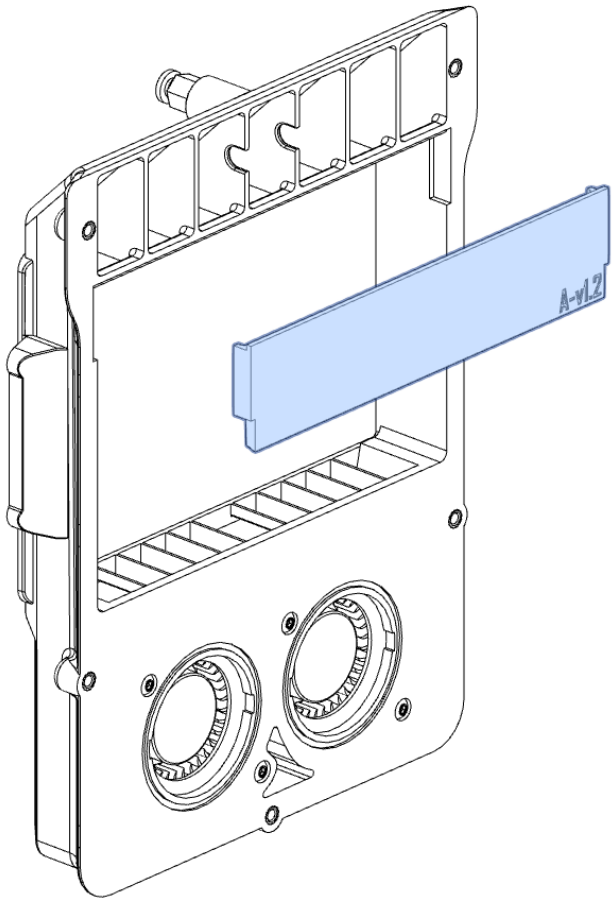


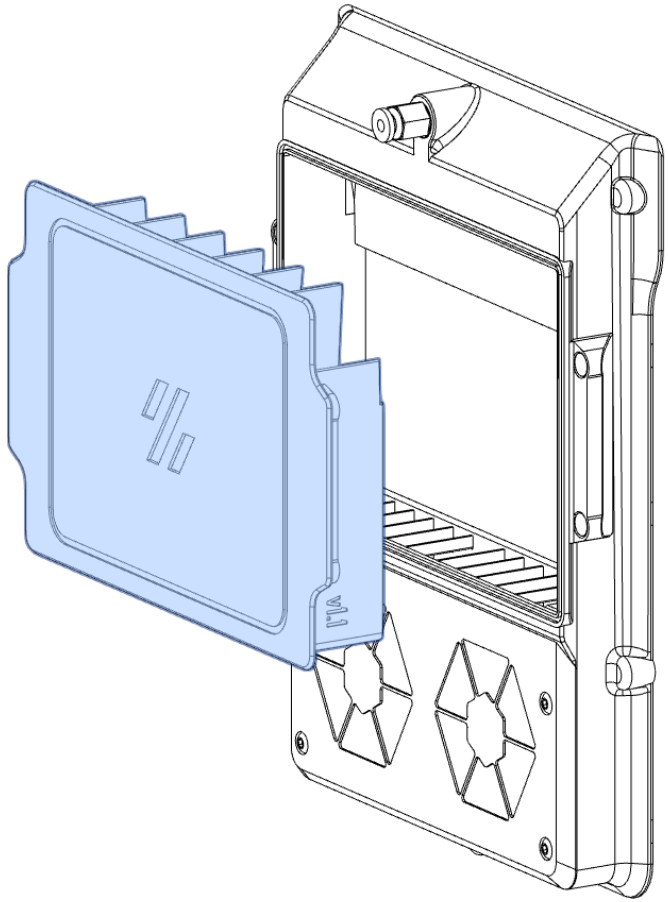

PC4-01 Pneumatic Connector
6×3 Magnet
Heat Set Insert
Heat Set Insert
6×3 Magnet


Heat Set Insert
5015 Blower
M3×20 BHCS


M3×8 BHCS


Activated carbon
50 hrs
30 d


A-v1.2


V1.1