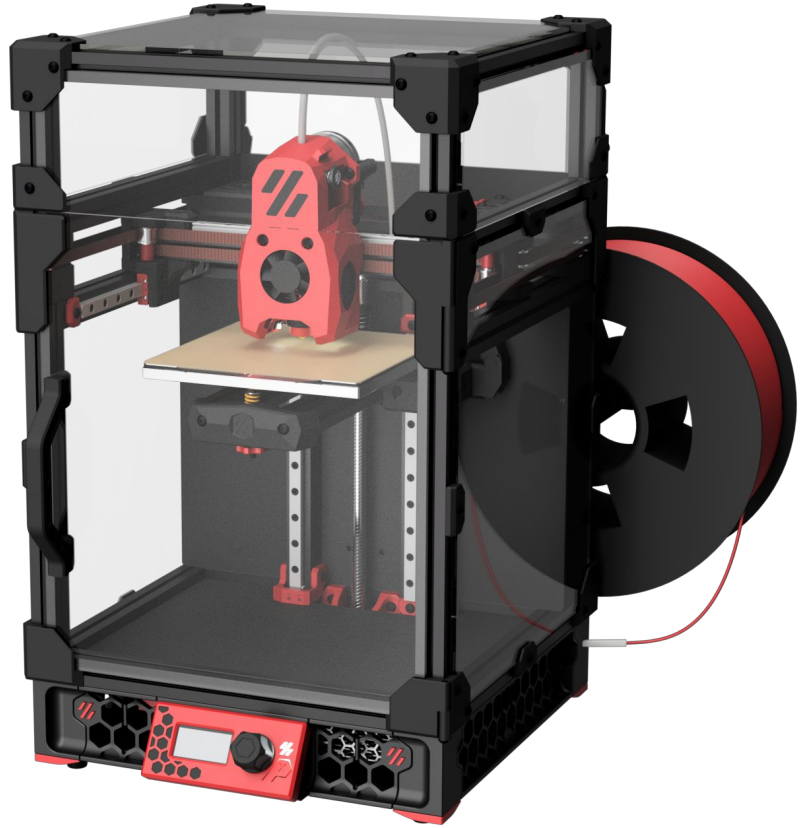
VORON DESIGN

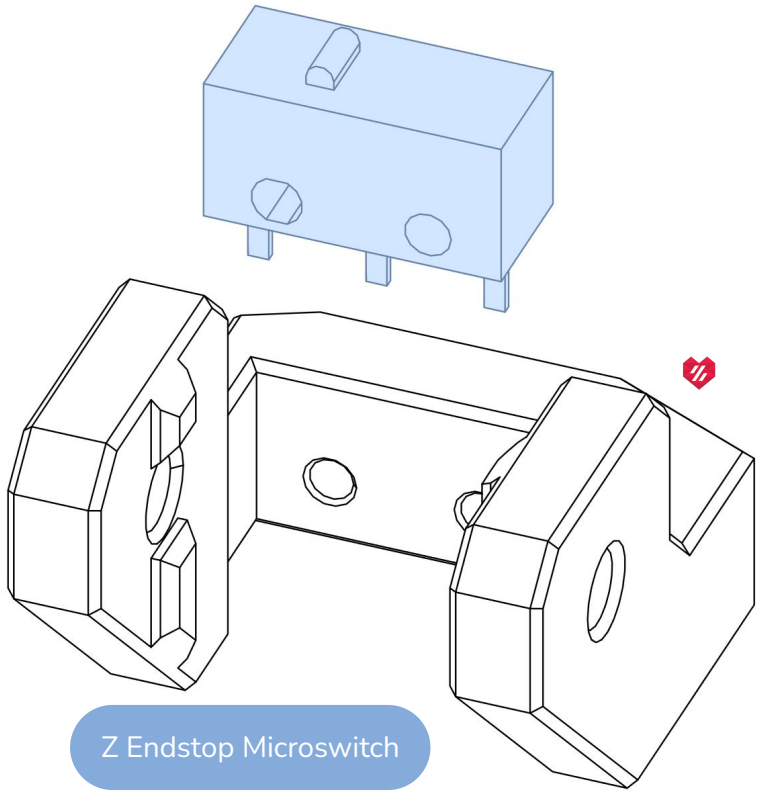


VORON ZERO ASSEMBLY MANUAL

We build space shuttles with gardening tools
so anyone can have a space shuttle of their own.

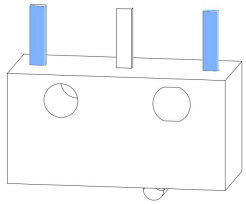
VERSION 2023-06-07

Note:
This tutorial is adapted from the official printout of the tutorial, the pictures are different, for installation reference only.



REMOVE THE LEVER

Remove the metal lever from the endstop switch. Double-check that the orientation of the switch matches the image above.

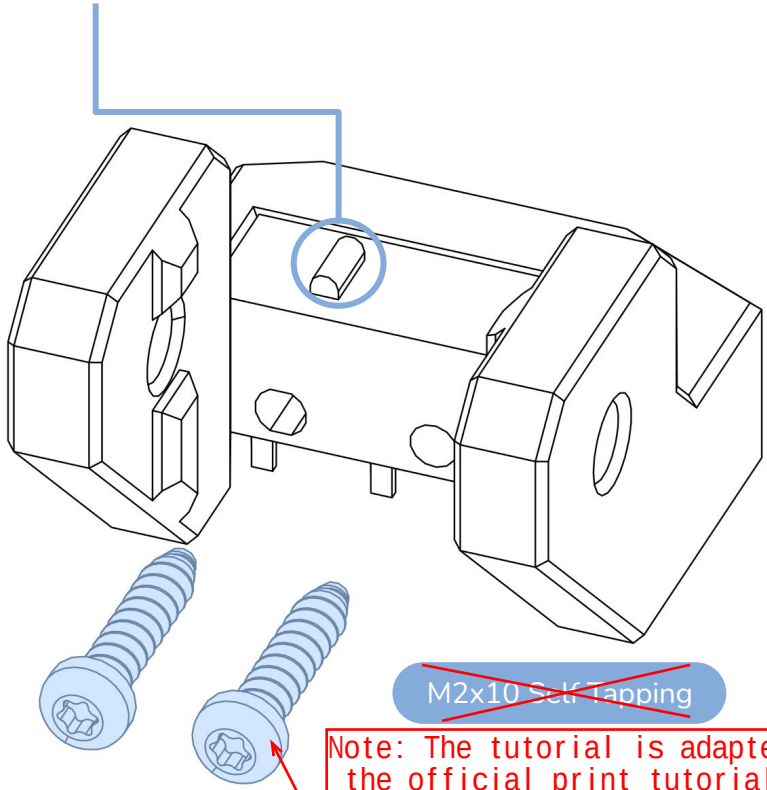


PREPARE ONE ENDSTOP SWITCH

Prepare the switch for Z by soldering wire to the two outer terminal. This will setup the switch in a Normally Closed state which is preferred for endstops.

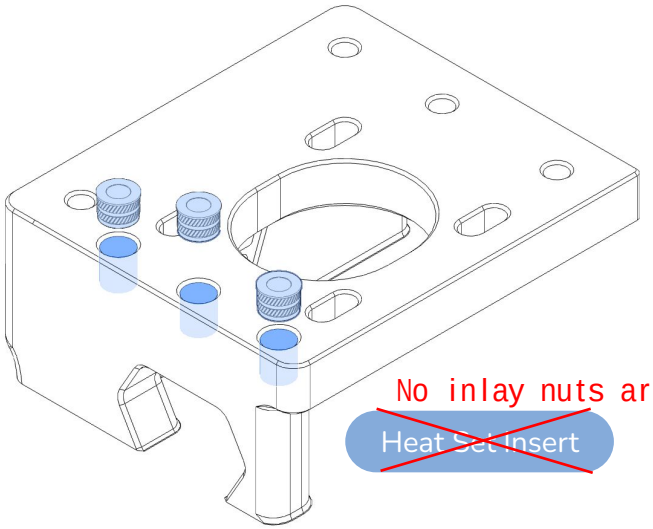
MIND THE SWITCH ORIENTATION

Pay attention to the position of the switch button.



Note: The tutorial is adapted from the official print tutorial, the pictures are different, only for installation reference.

49

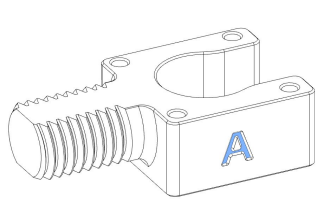


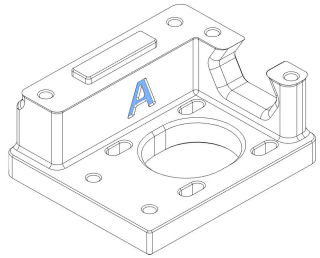
No inlay nuts are required

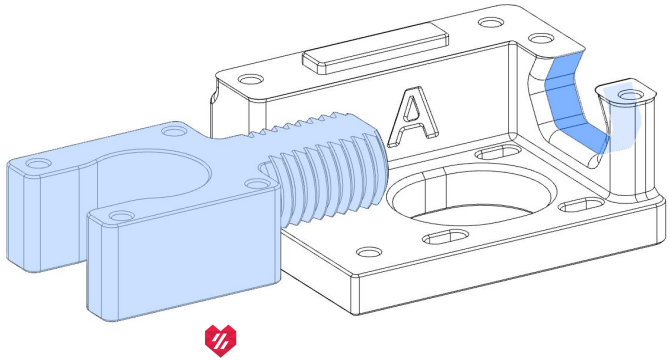
~~Heat Set Insert~~

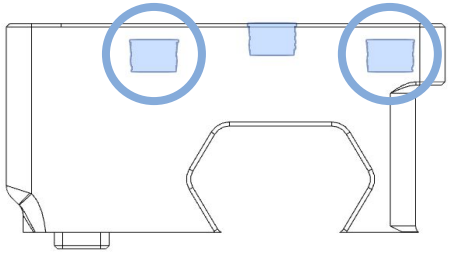
IDENTIFYING THE CORRECT PARTS

The parts have their sides embossed.



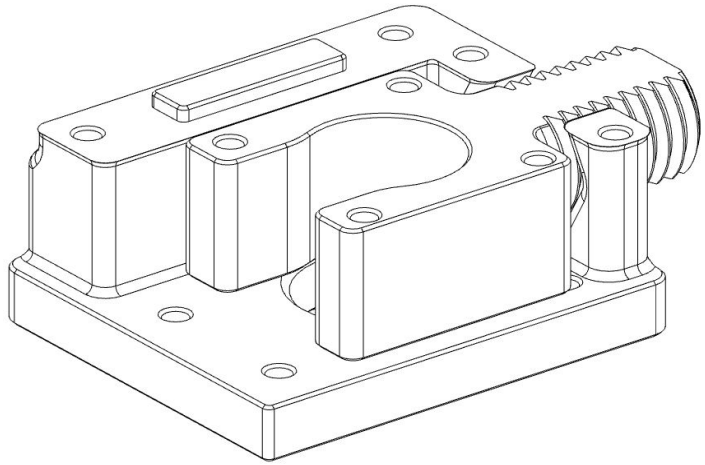


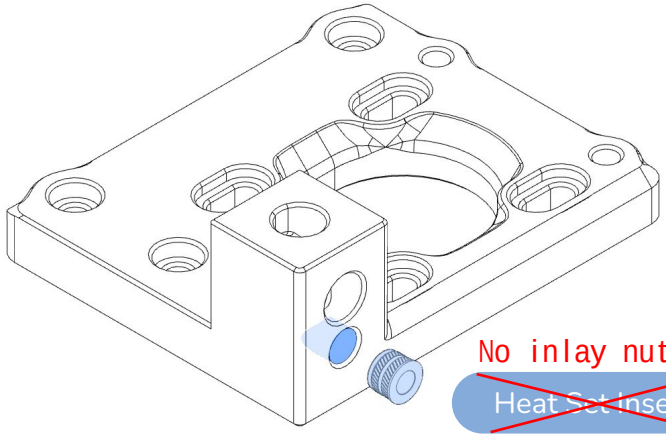




INSERTS SIT BELOW THE SURFACE

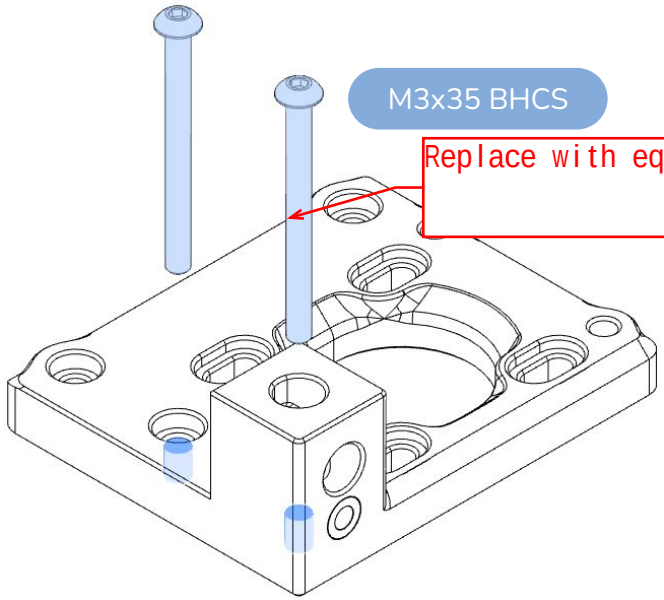
The outer heat set inserts sit below the surface of the part. When installing, make sure the heat set inserts bottom out in their hole.





No inlay nuts are required

~~Heat Set Insert~~



M3x35 BHCS

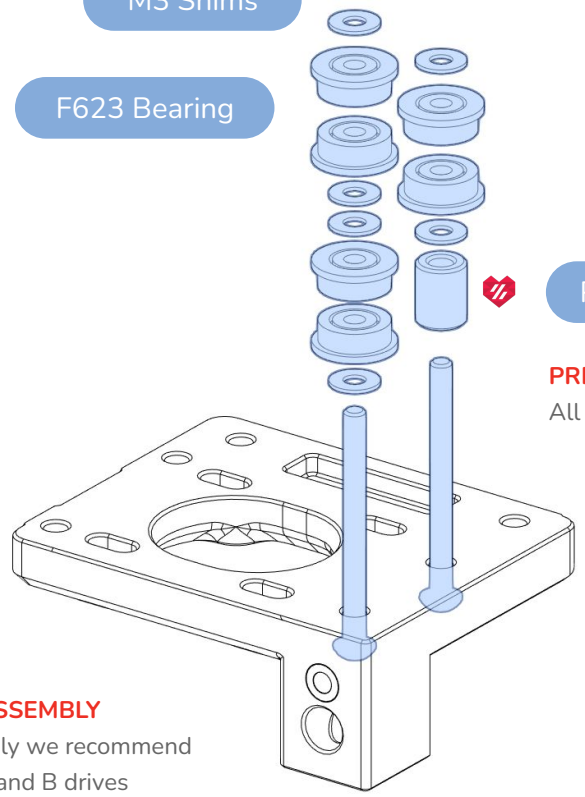
Replace with equal length custom screws

A NOTE ON SHIMS

We specify shims as they have a consistent thickness compared to regular washers. If you sourced washers instead make sure to measure their thickness (target = 0.5mm) to avoid issues with the stackup.

M3 Shims

F623 Bearing



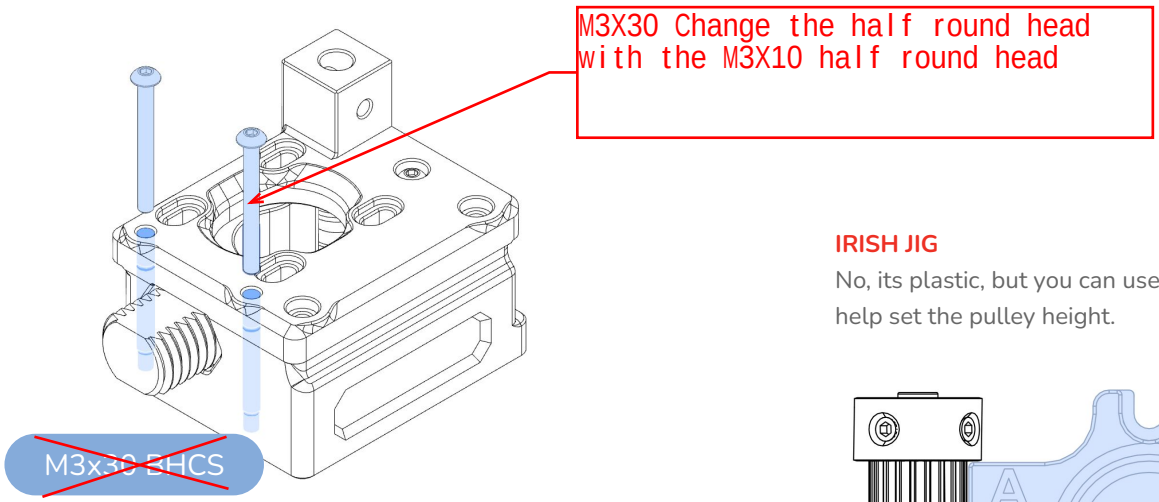
Printed Spacer

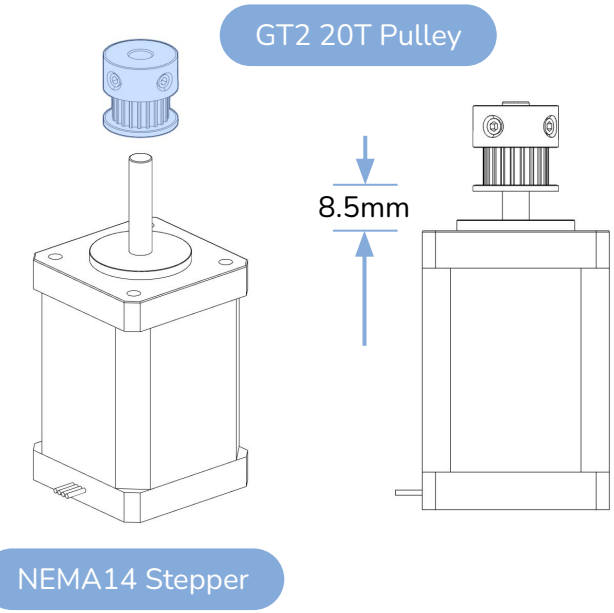
PRINTED SPACER

All 6 spacers are identical.

UPSIDE DOWN ASSEMBLY

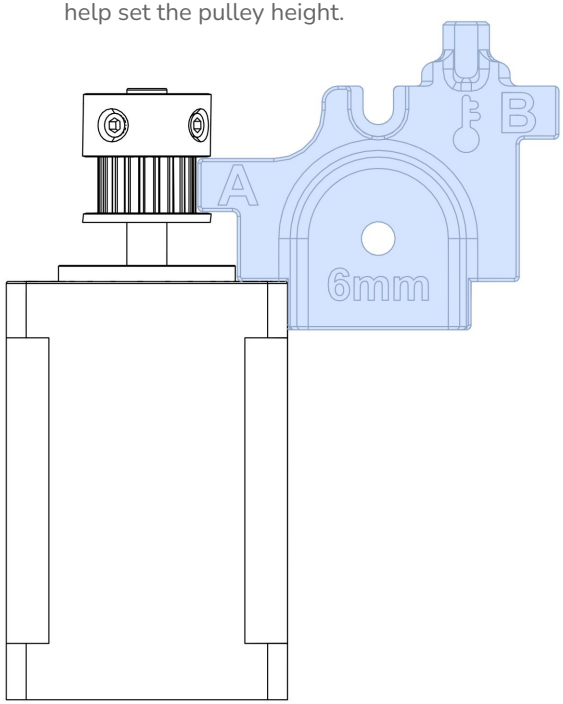
For ease of assembly we recommend to assemble the A and B drives upside down.

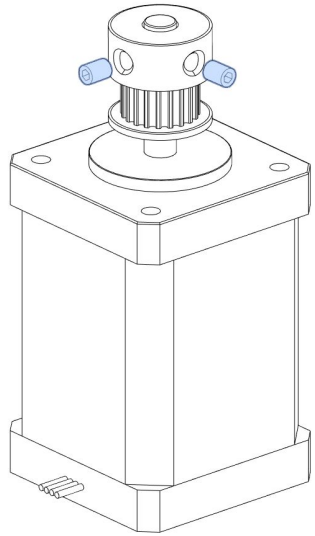




IRISH JIG

No, its plastic, but you can use it to help set the pulley height.





GRUB SCREWS

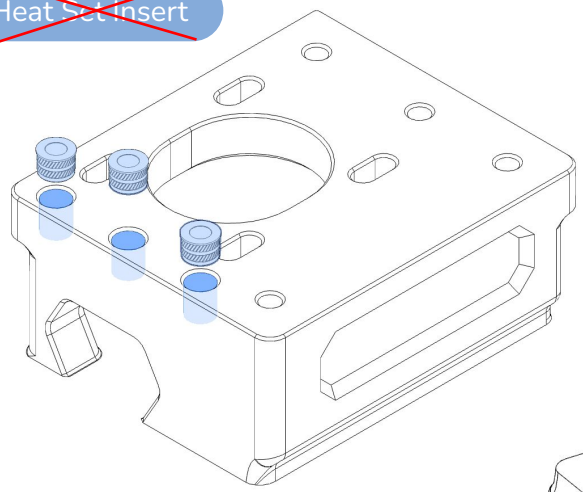
AKA THE ROOT OF ALL ISSUES

Use thread locker on all grub screws.

Loose grub screws account for a large percentage of issues that our users report. Save yourself hours of troubleshooting and apply threadlocker to all grub screws during the build. See the instructions on your threadlocker product.

No inlay nuts are required

~~Heat Set Insert~~

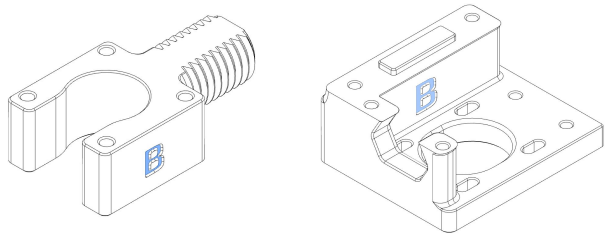


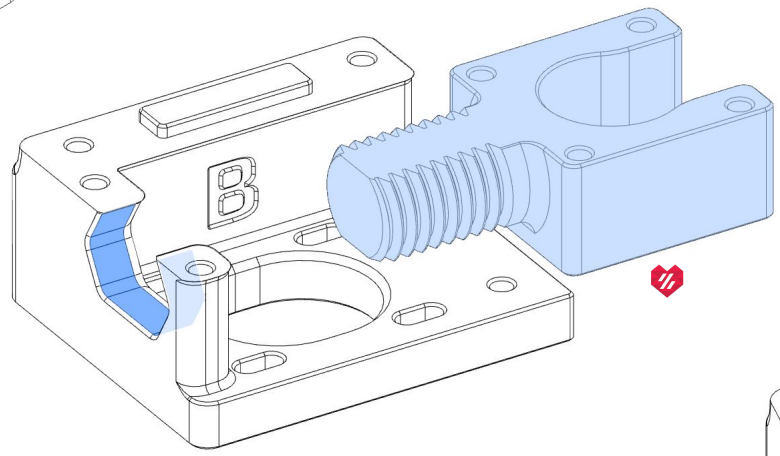
DEJA VU?

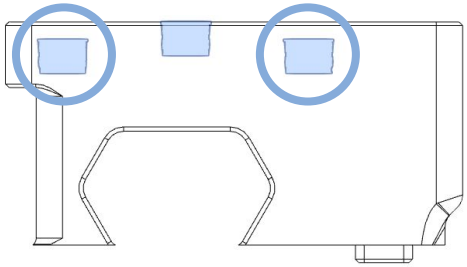
We will repeat the drive assembly steps for the B drive unit.

IDENTIFYING THE CORRECT PARTS

The parts have their sides embossed.

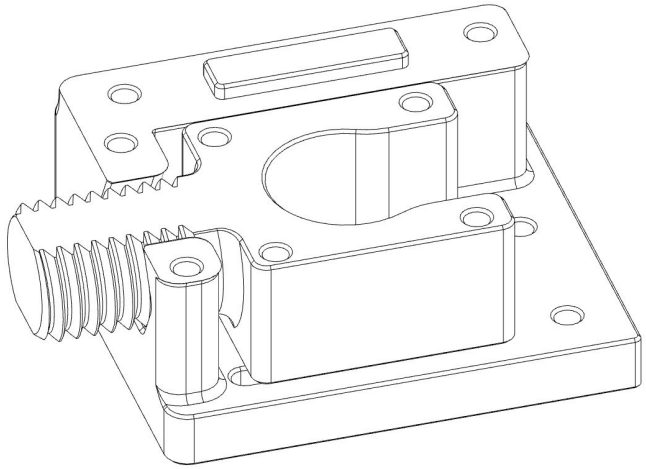


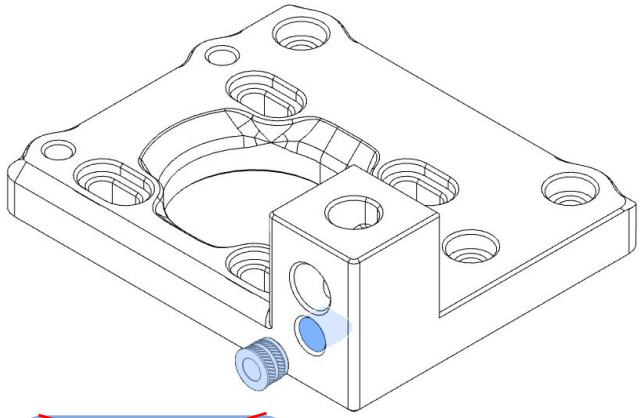




INSERTS SIT BELOW THE SURFACE

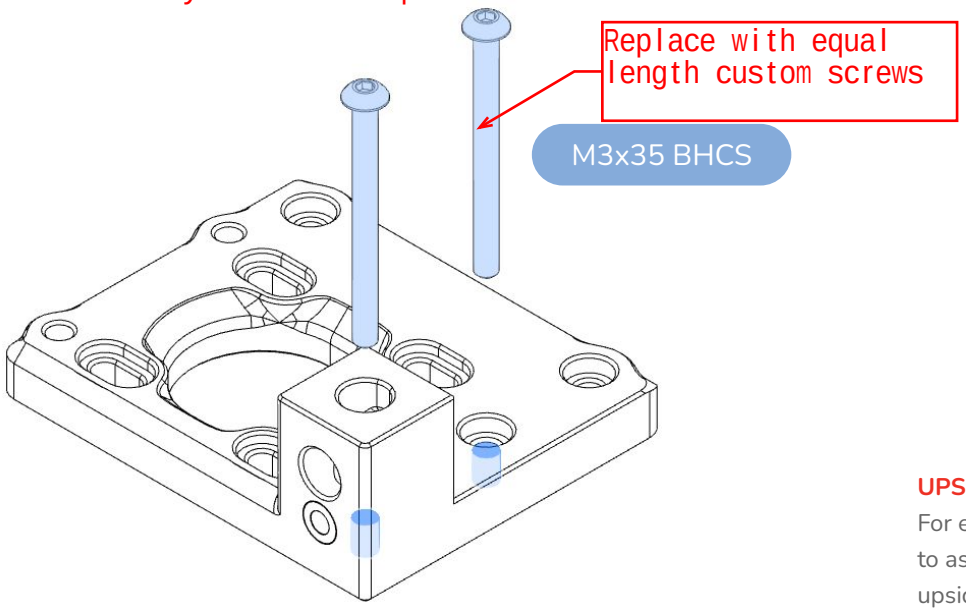
The outer heat set inserts sit below the surface of the part. When installing, make sure the heat set inserts bottom out in their hole.





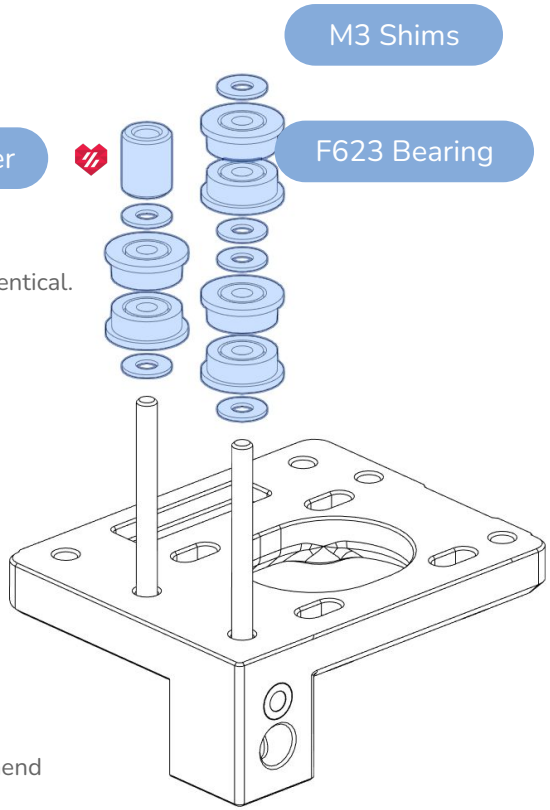
~~Heat Set Insert~~

No inlay nuts are required



A NOTE ON SHIMS

We specify shims as they have a consistent thickness compared to regular washers. If you sourced washers instead make sure to measure their thickness (target = 0.5mm) to avoid issues with the stackup.



PRINTED SPACER

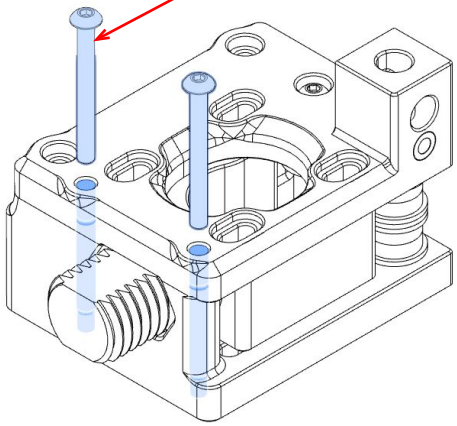
All 6 spacers are identical.

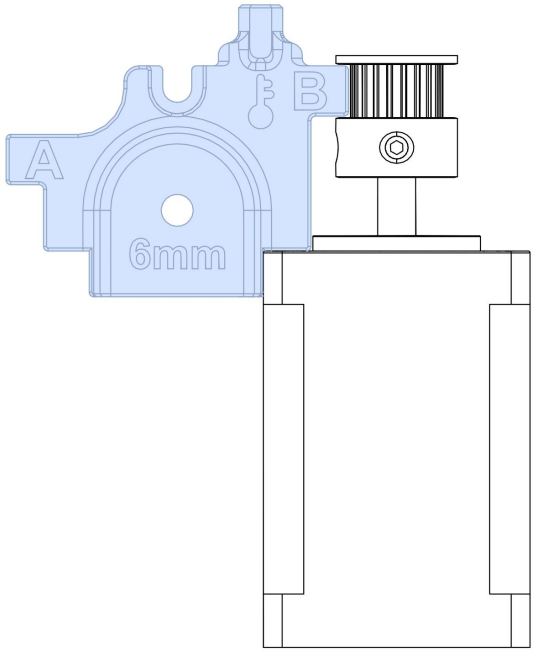
UPSIDE DOWN ASSEMBLY

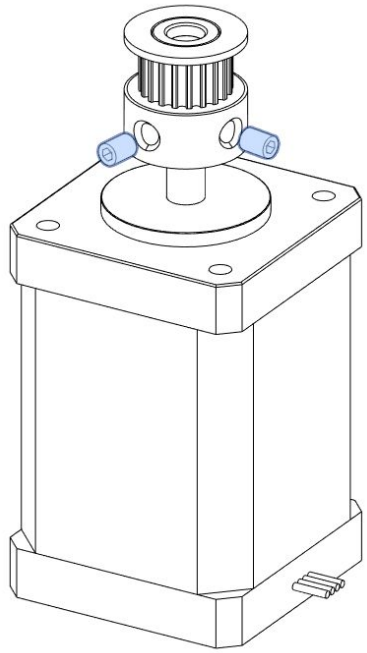
For ease of assembly we recommend to assemble the A and B drives upside down.

M3X30 Change the half round head with the M3X10 half round head

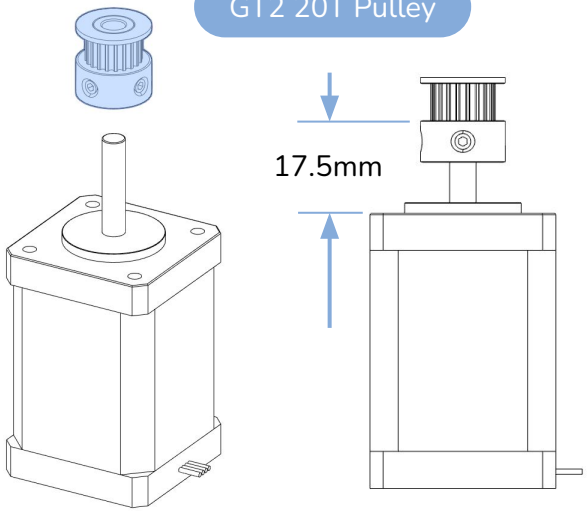
M3x30 BHCS







GT2 20T Pulley



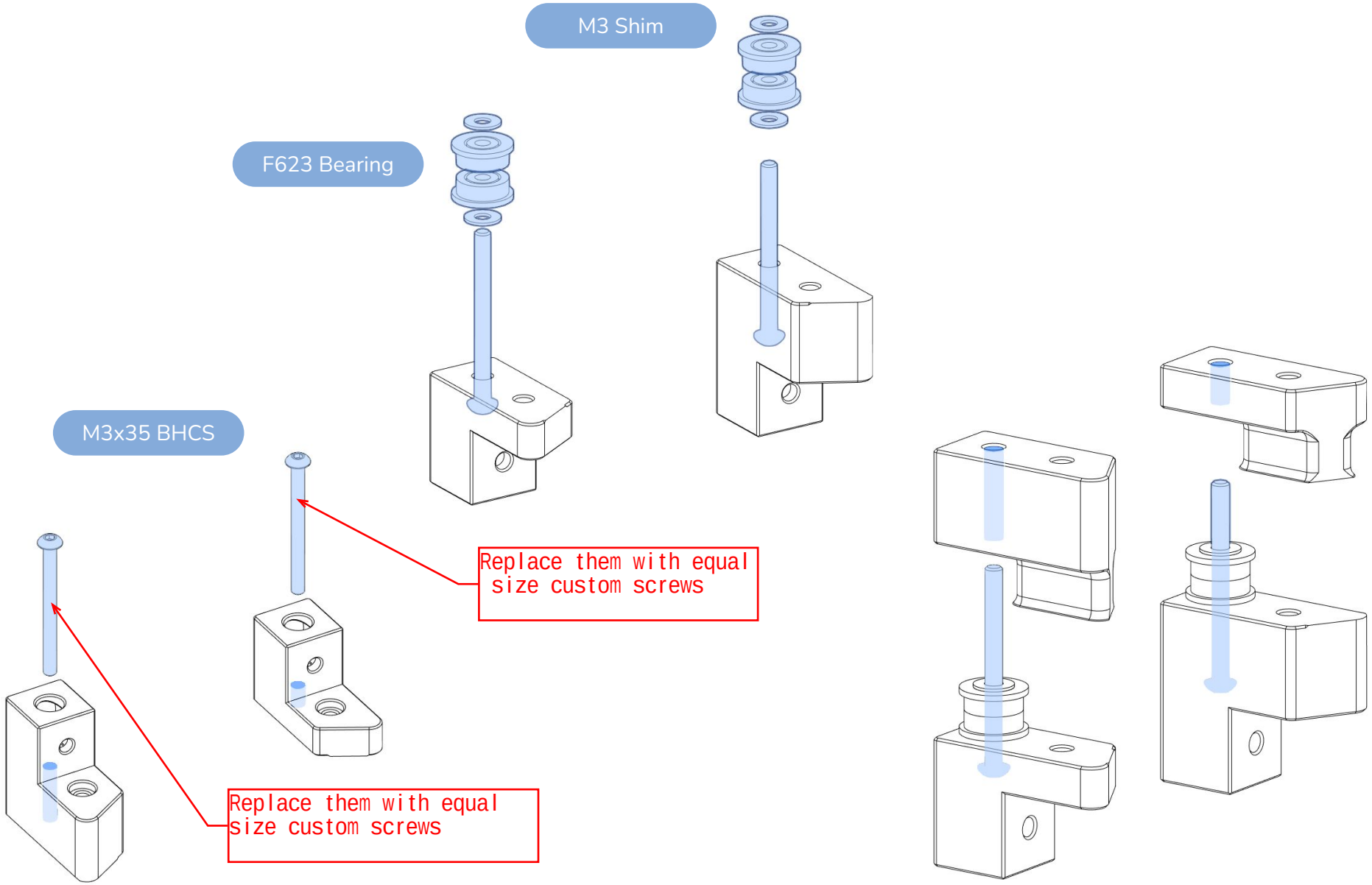
NEMA14 Stepper

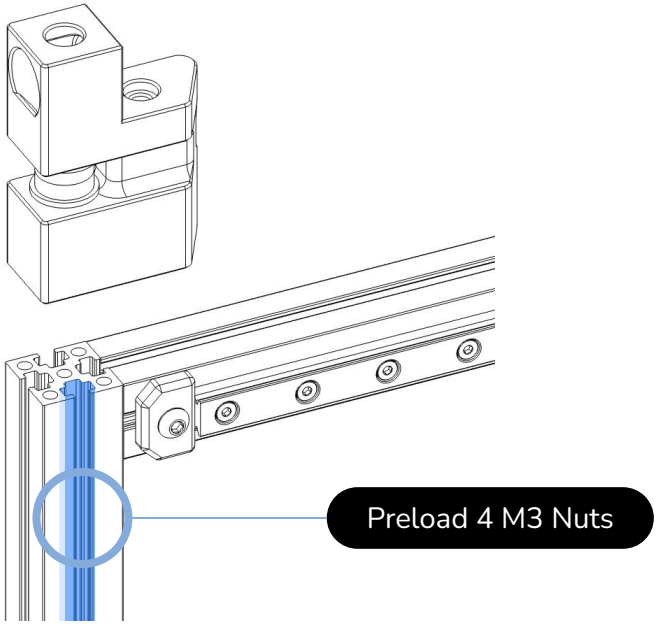
GRUB SCREWS

AKA THE ROOT OF ALL ISSUES

Use thread locker on all grub screws.

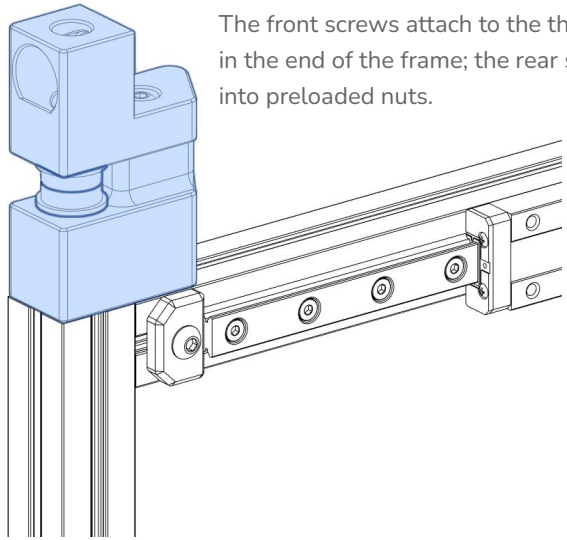
Loose grub screws account for a large percentage of issues that our users report. Save yourself hours of troubleshooting and apply threadlocker to all grub screws during the build. See the instructions on your threadlocker product.

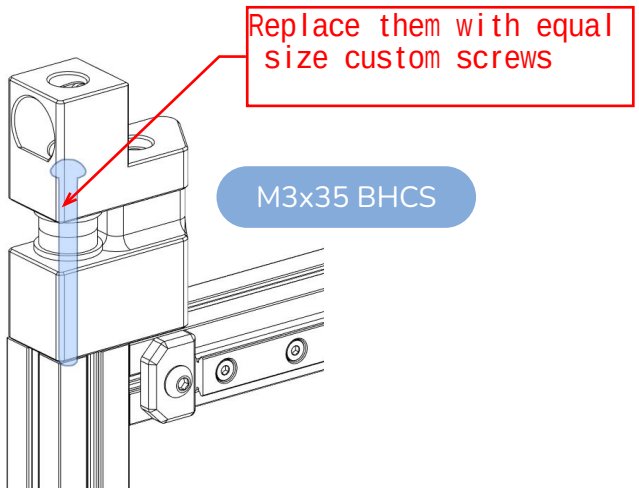

M3 Shim
F623 Bearing
M3x35 BHCS
Replace them with equal size custom screws
Replace them with equal size custom screws

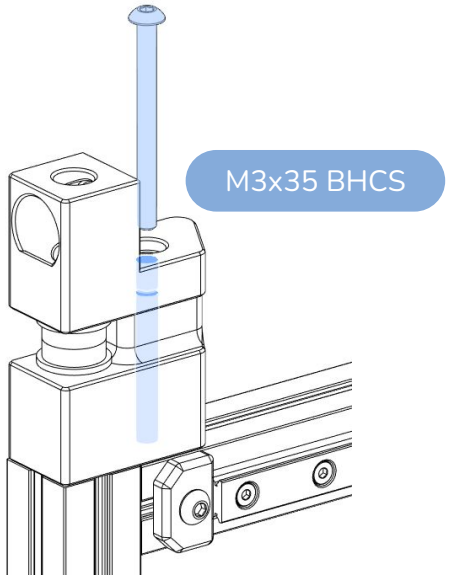


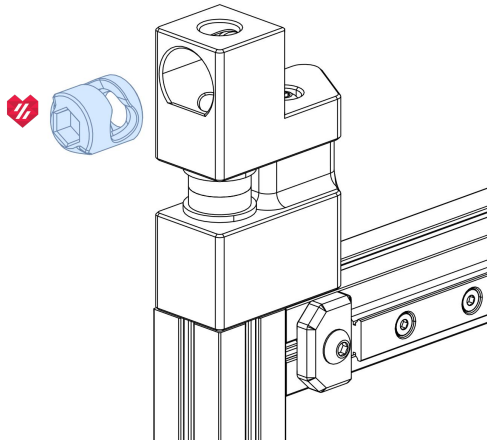
THREADED FRAME ENDS

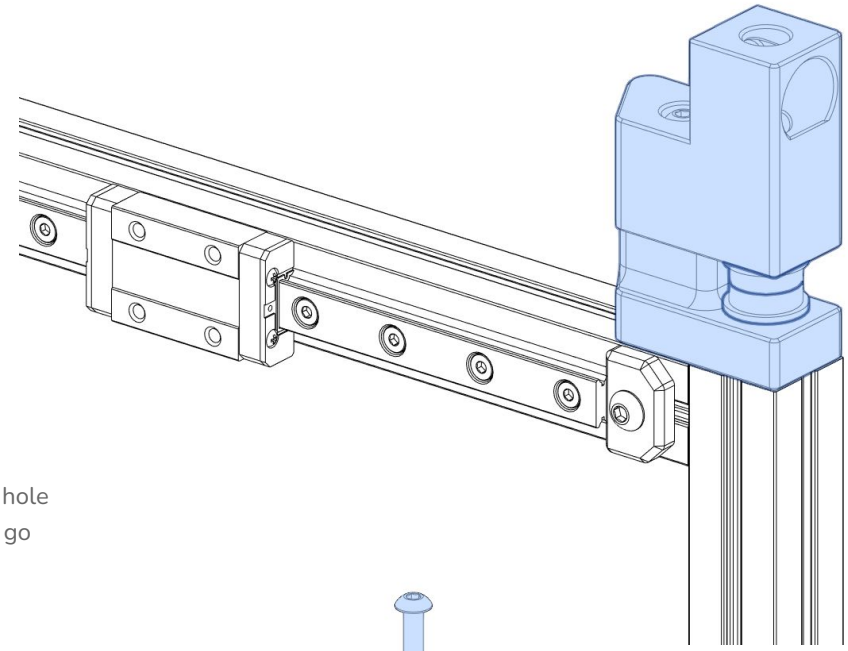
The front screws attach to the threaded hole in the end of the frame; the rear screws go into preloaded nuts.







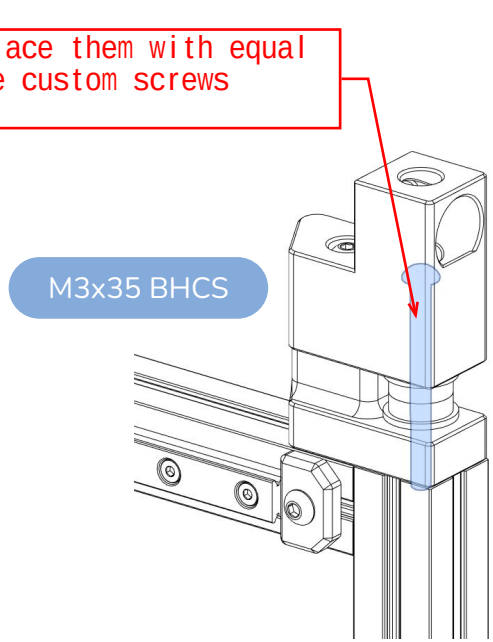


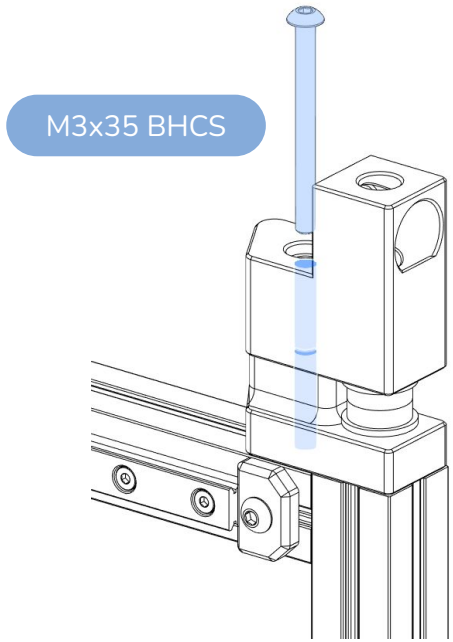


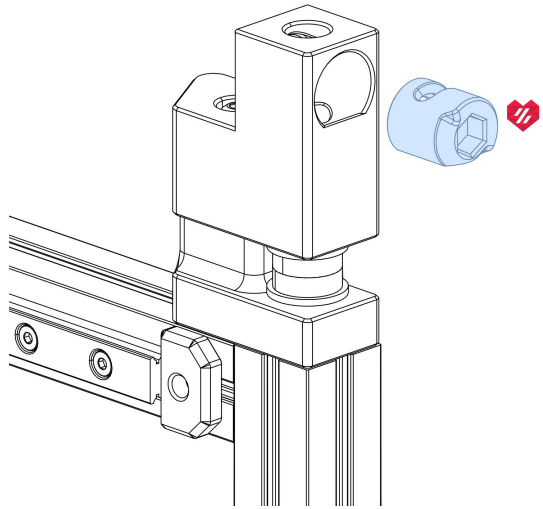
THREADED FRAME ENDS

The front screws attach to the threaded hole in the end of the frame. The rear screws go into preloaded nuts.

Replace them with equal size custom screws

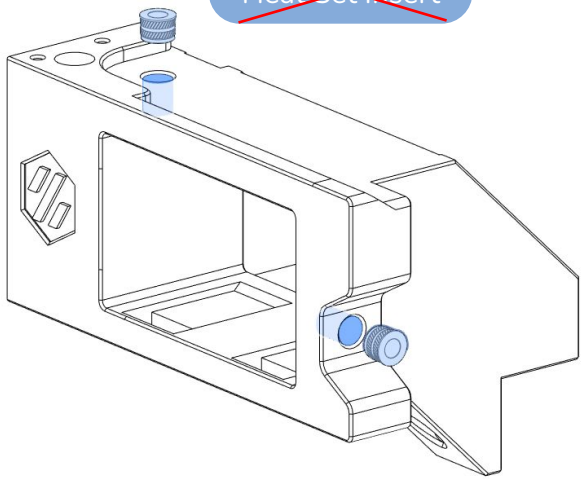






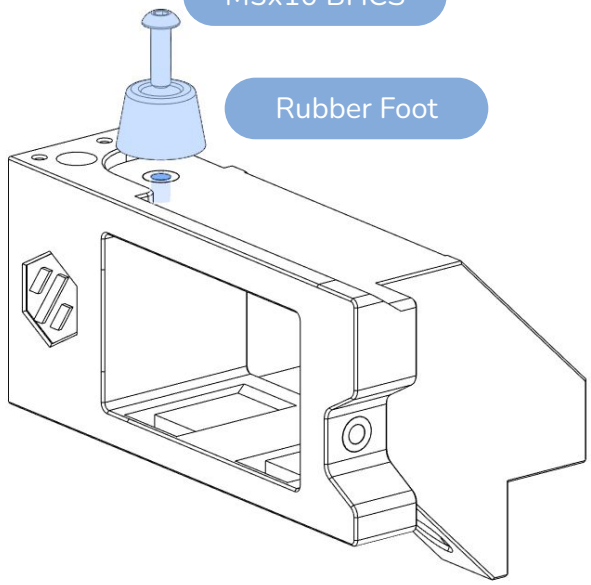
No inlay nuts are required

~~Heat Set Insert~~



M3x10 BHCS

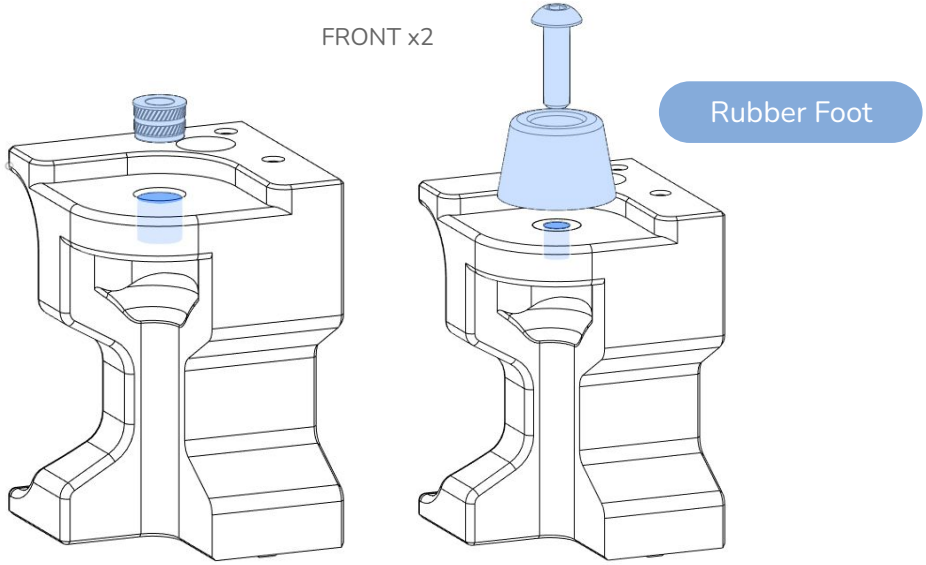
Rubber Foot

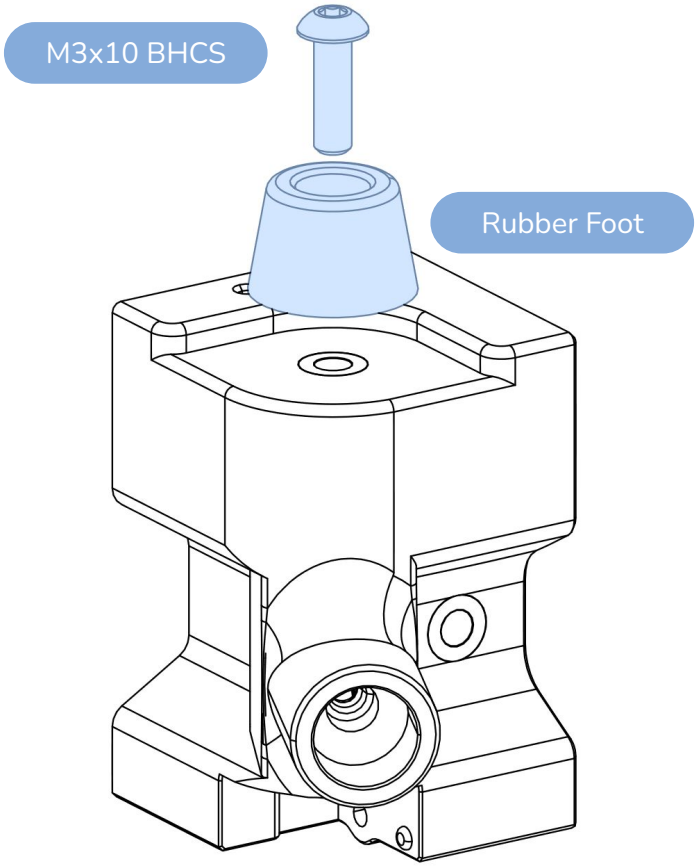


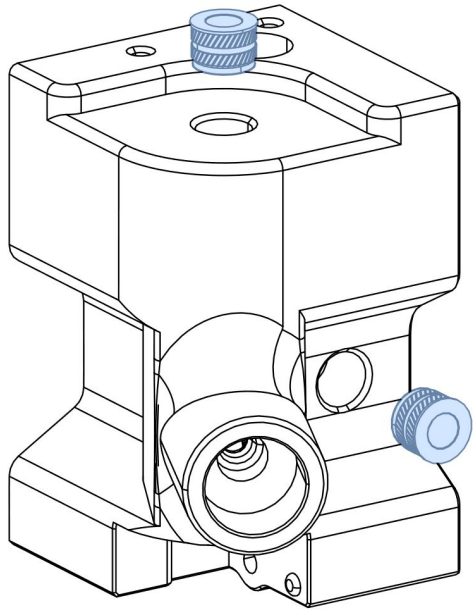
M3x10 BHCS

FRONT x2

Rubber Foot



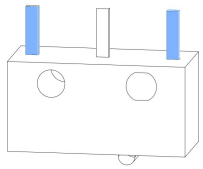




REAR x1

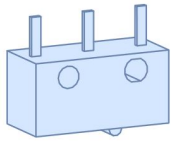
BOWDEN TUBE HOLE

The rear right foot has an extra hole that will hold the reverse bowden tube to guide filament from the spool into the printer.

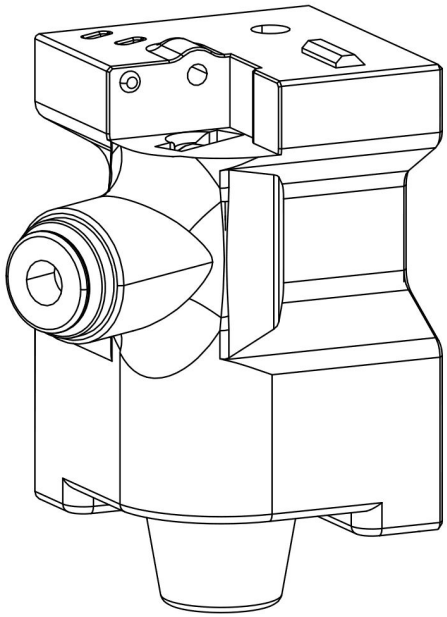


PREPARE ONE ENDSTOP SWITCH

Prepare the switch for the Filament runout sensor by soldering wire to the two outer terminal. This will setup the switch in a Normally Closed state which is preferred for this type of use case..

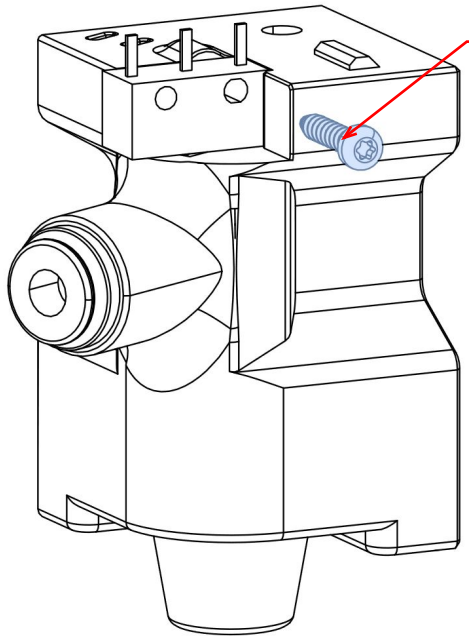


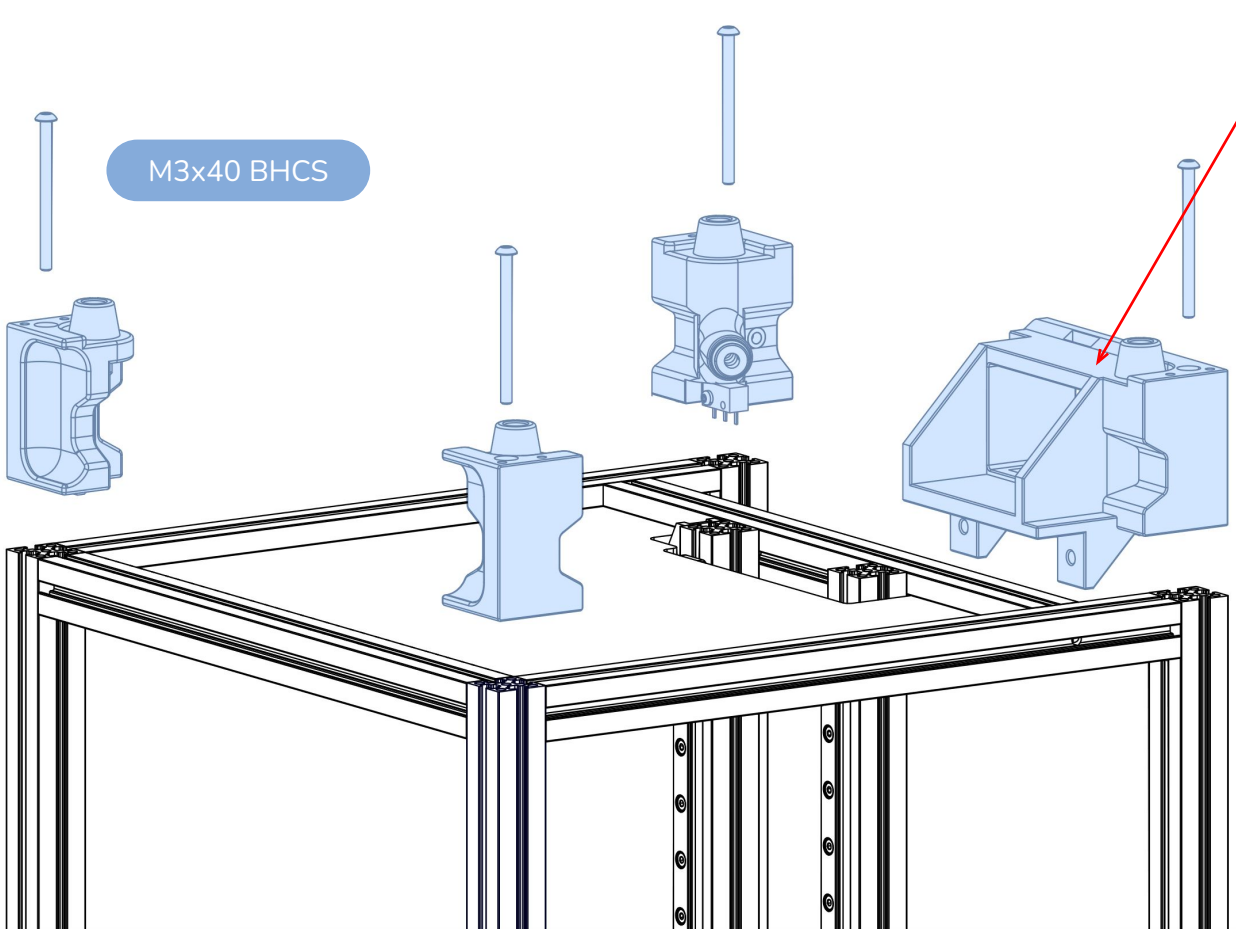
Filament Runout Sensor Microswitch



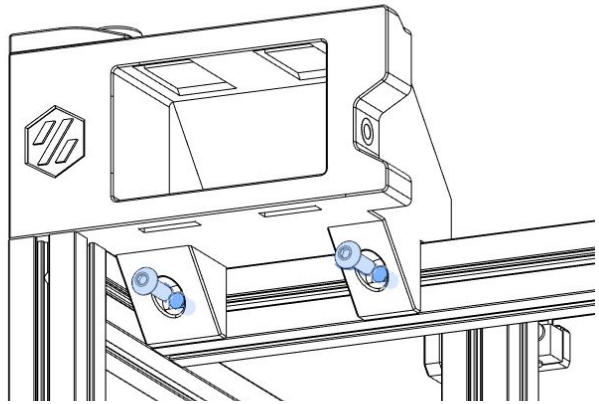
~~M2x10 Self Tapping Screw~~

M2X10 self-tapping screw replaced with M2X10, half-round head screw





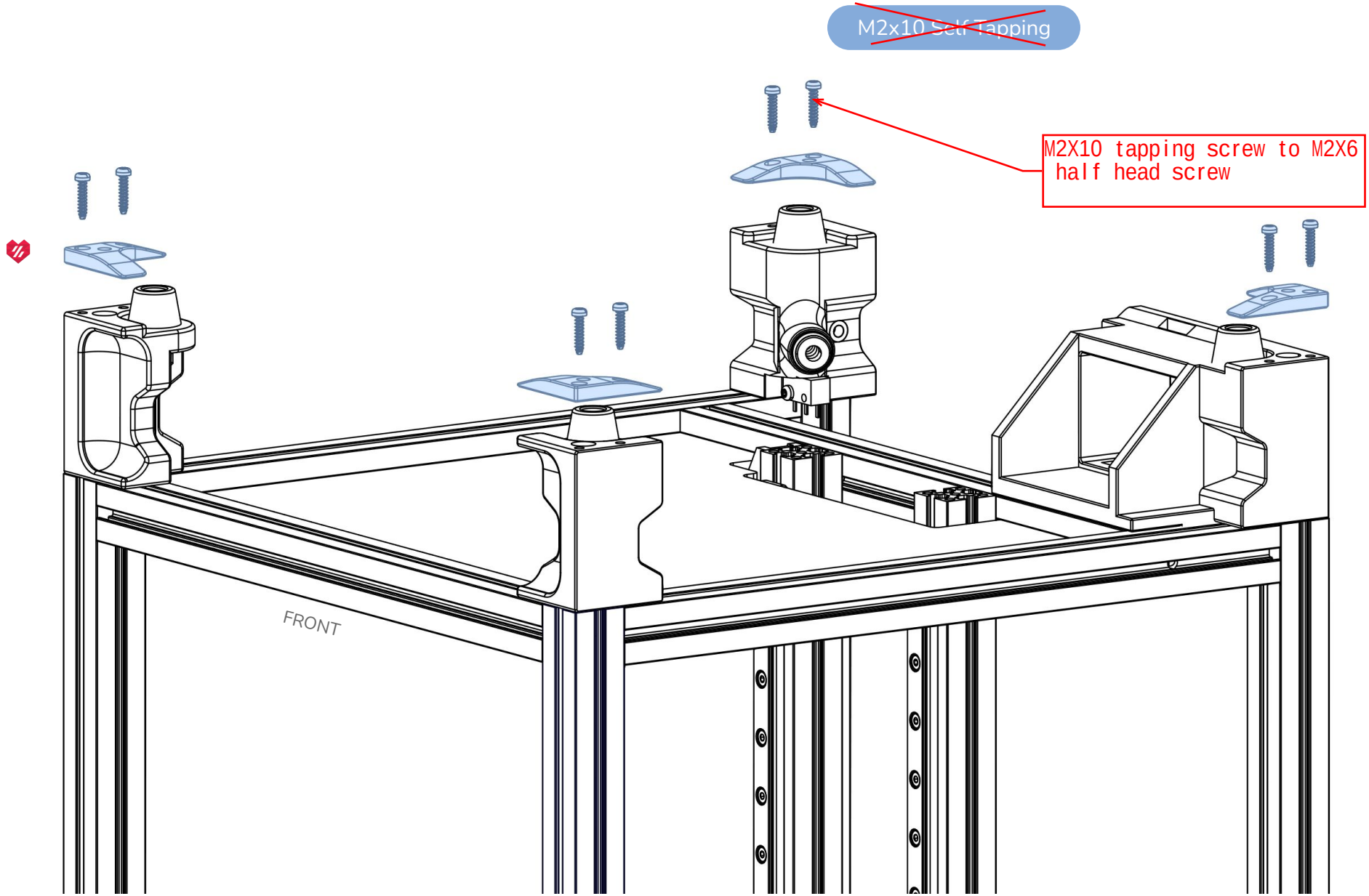
The power print and CNC parts are connected with M3X6 half-head screws

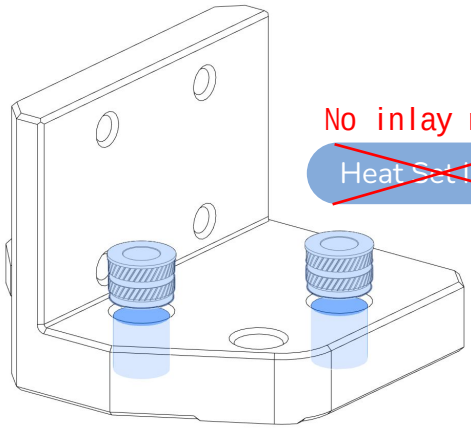


M3x10 BHCS

REMEMBER THESE HEX NUTS?

Secure inlet using the nuts we preloaded on page 52.


M2x10 Self Tapping
M2X10 tapping screw to M2X6 half head screw
FRONT

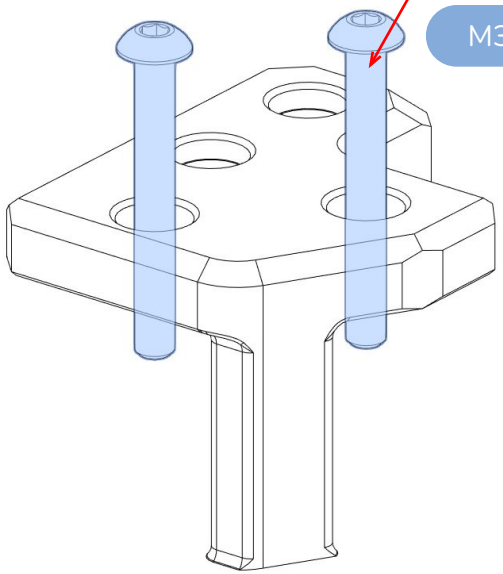


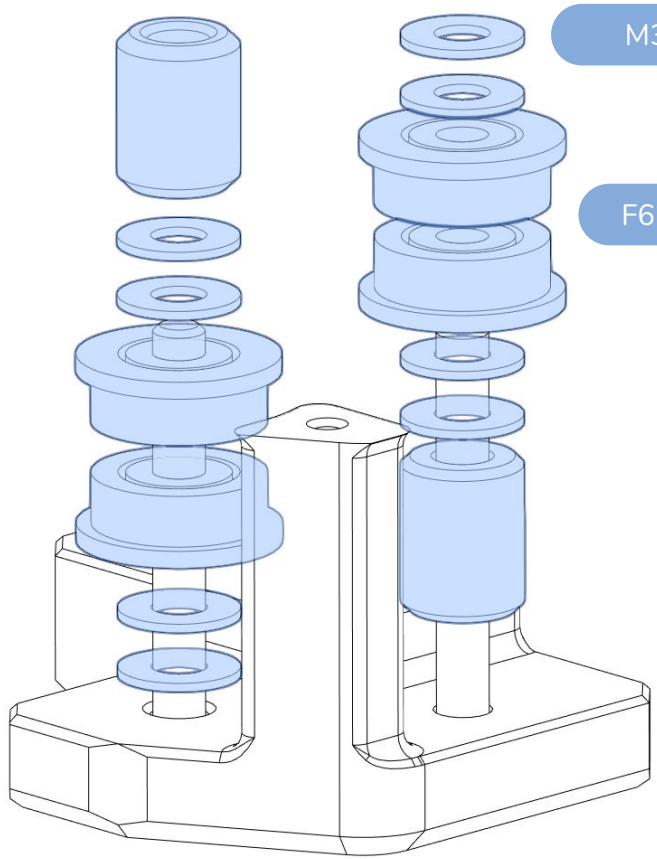
No inlay nuts are required

~~Heat Set Insert~~

Replace them with equal size custom screws

M3x25 BHCS



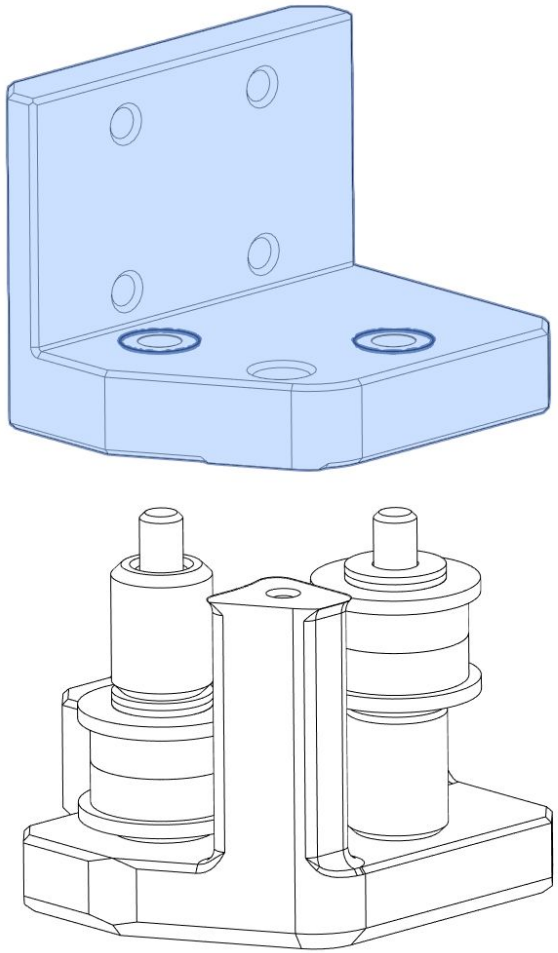


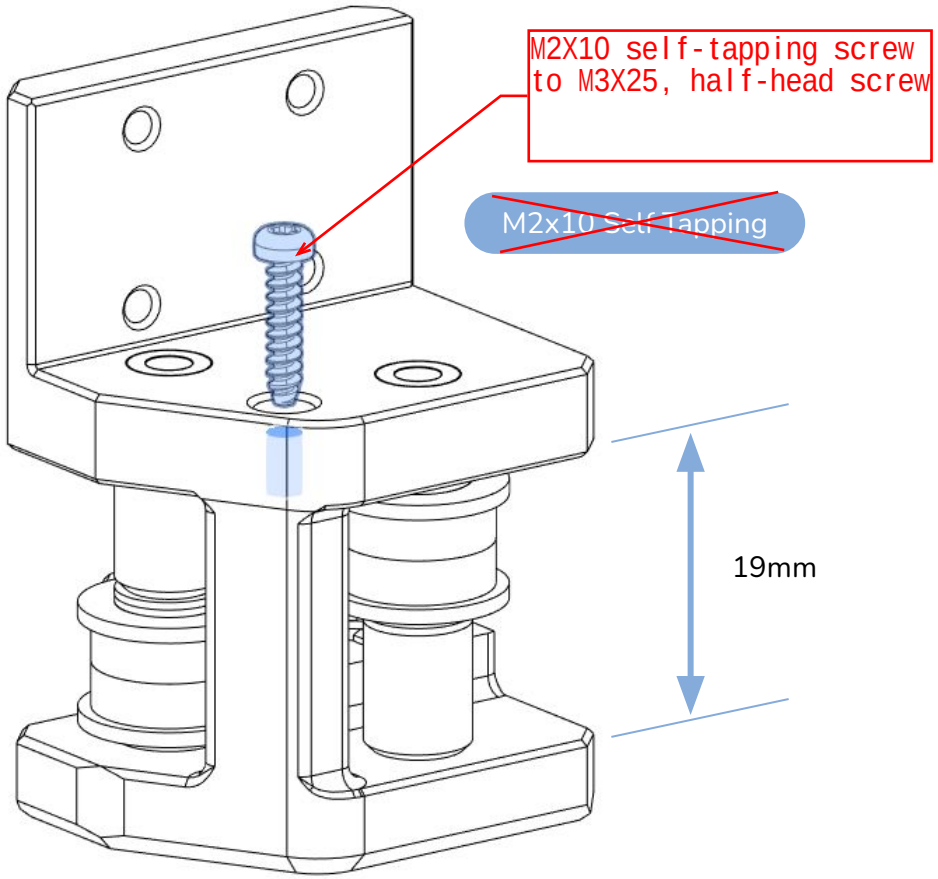
M3 Shim

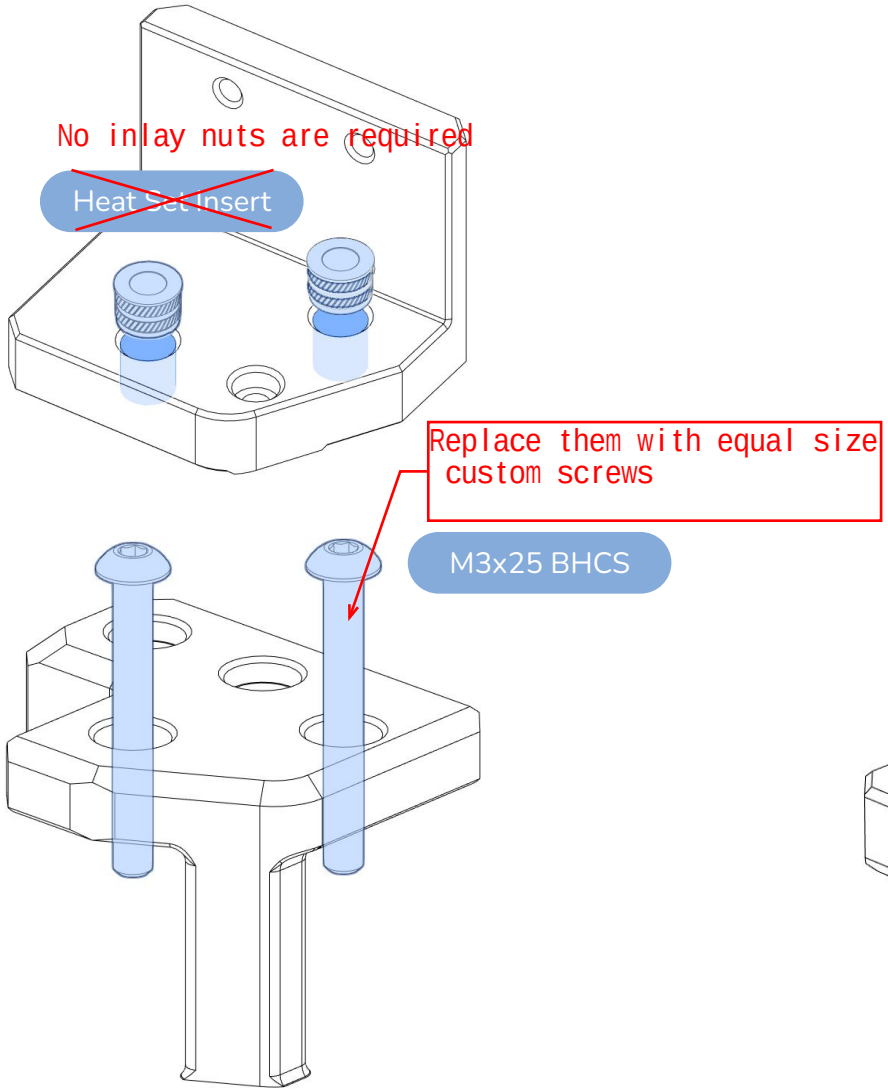
F623 Bearing

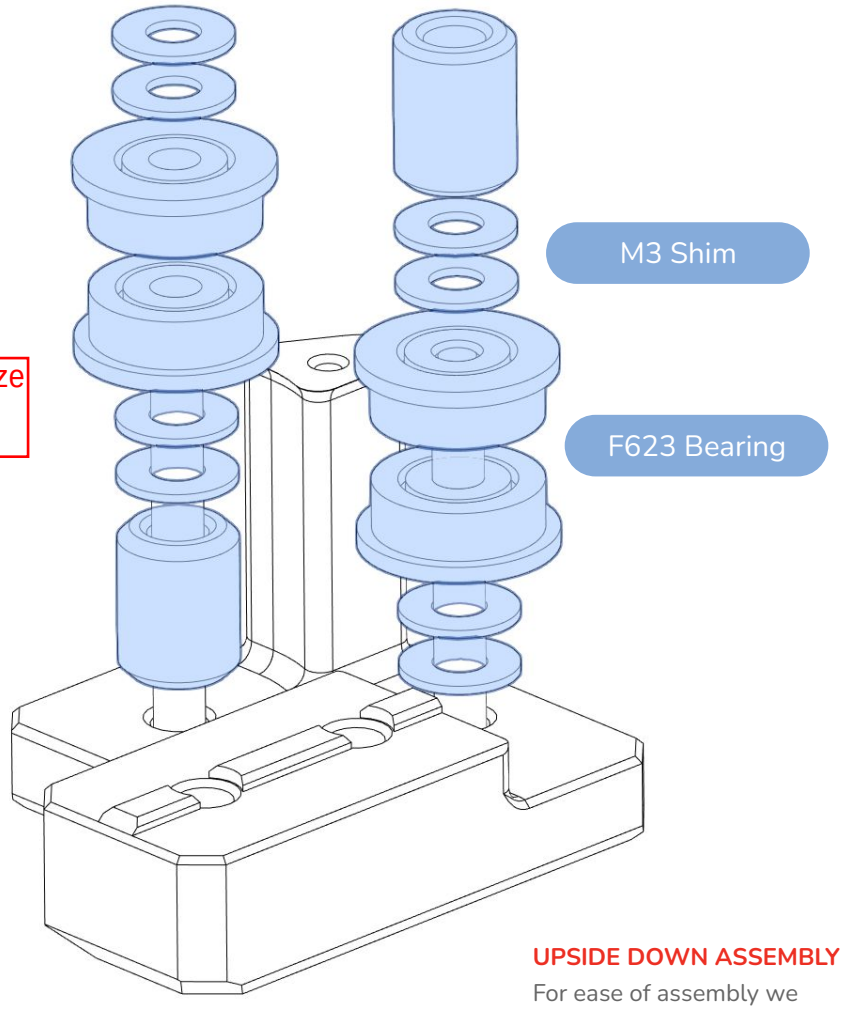
UPSIDE DOWN ASSEMBLY

For ease of assembly we recommend to assemble the XY joints upside-down.



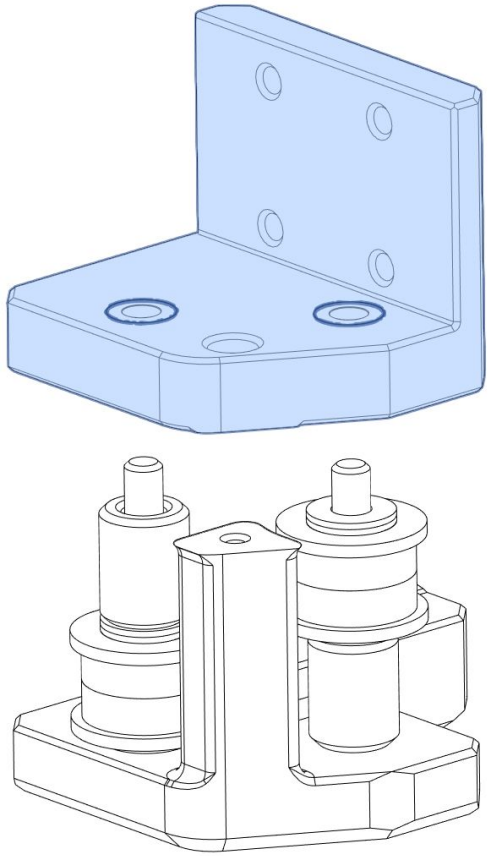

M2X10 self-tapping screw
to M3X25, half-head screw
M2x10 Self Tapping
19mm

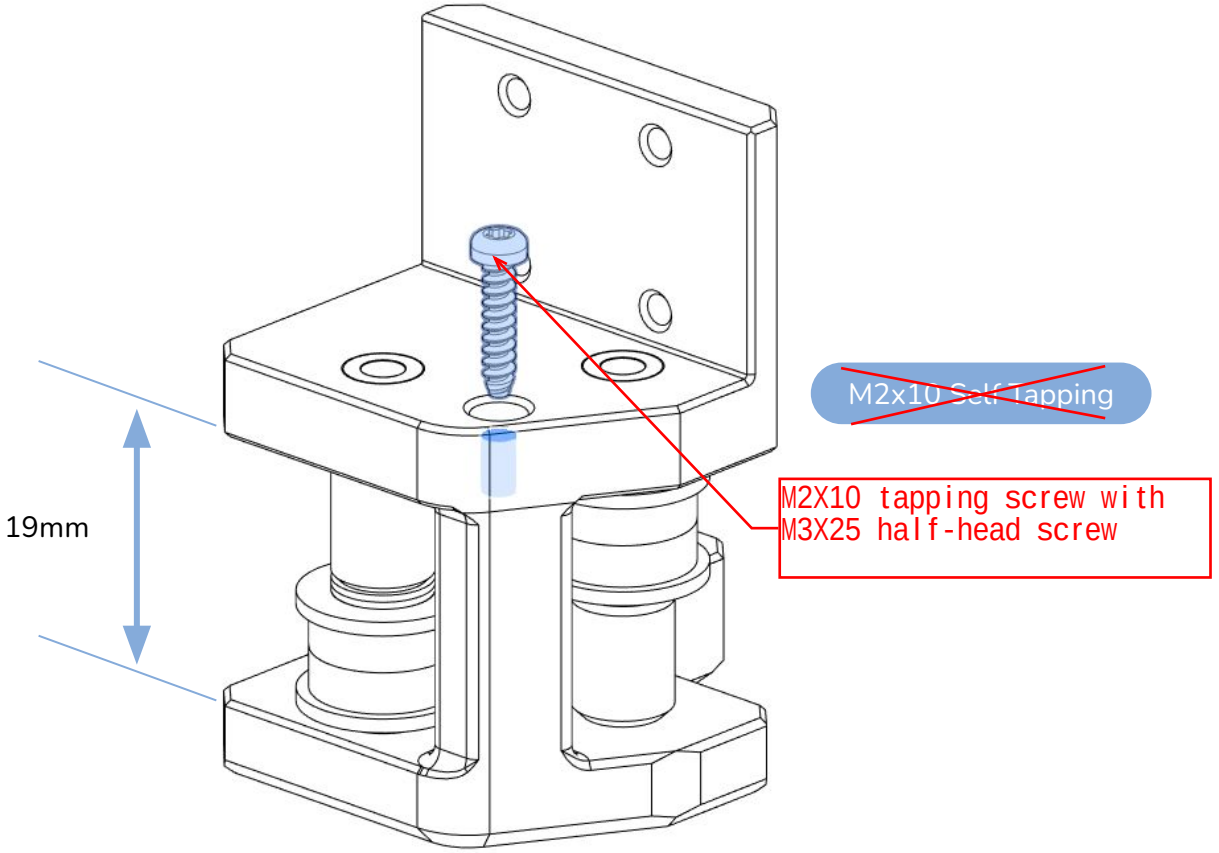




UPSIDE DOWN ASSEMBLY

For ease of assembly we recommend to assemble the XY joints upside down.




19mm
M2x10 Self Tapping
M2X10 tapping screw with
M3X25 half-head screw