# Quaduck

Voron Switchwire Double X-Gantry Version/Mod

Hello dear friend of excentric 3D-printers, may I introduce the Quaduck, an IDEX Printer with in Z completely independent Toolheads, based on the Voron Switchwire.
The naming originates from a long CAD session, where I started seeing a duck's face on a specific part of the printer. Can you see it? Well, then you have to build it. ;-)
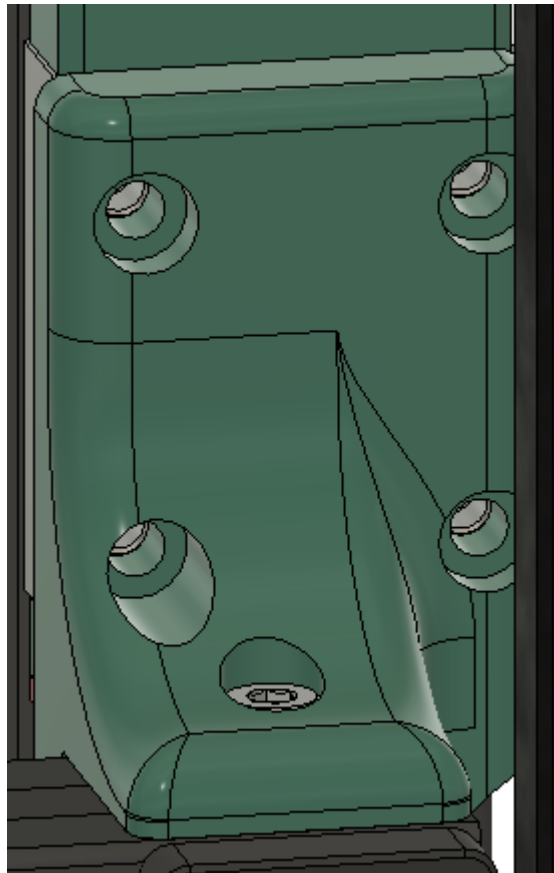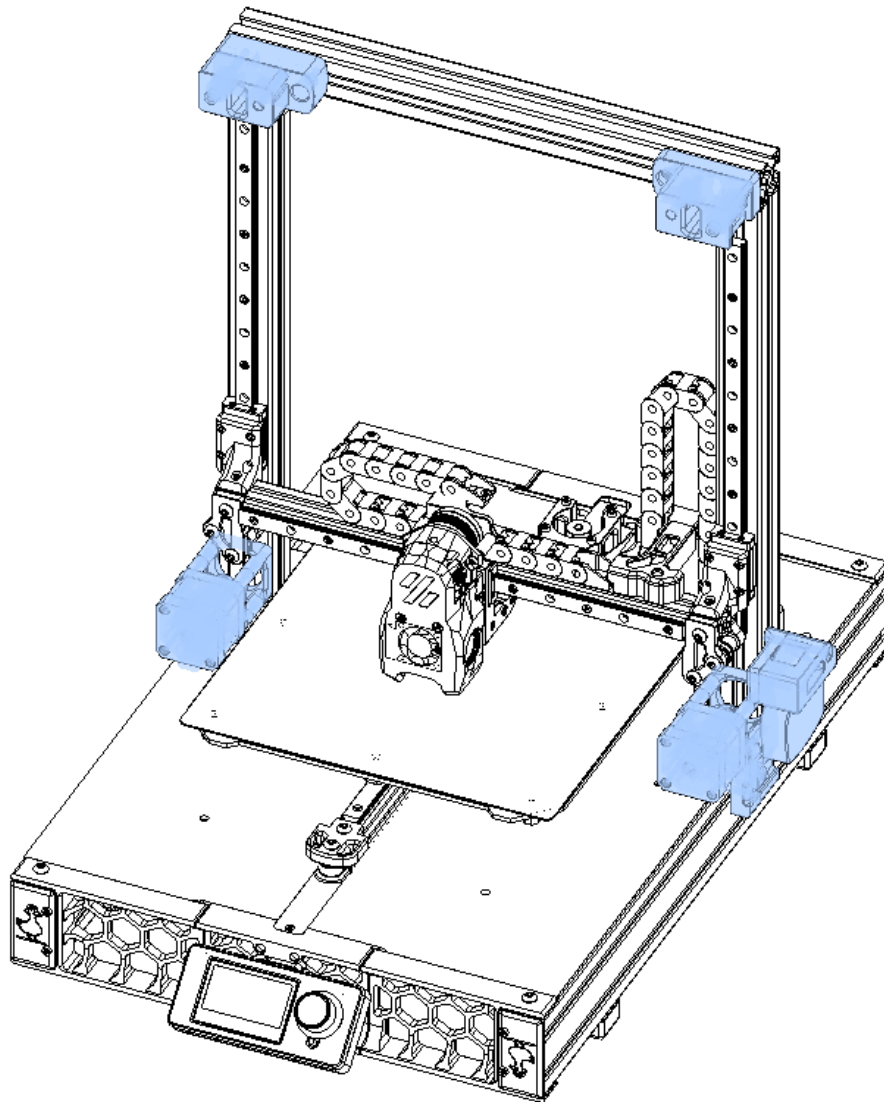

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It combines:
- ZIDEX 3D-Printer idea
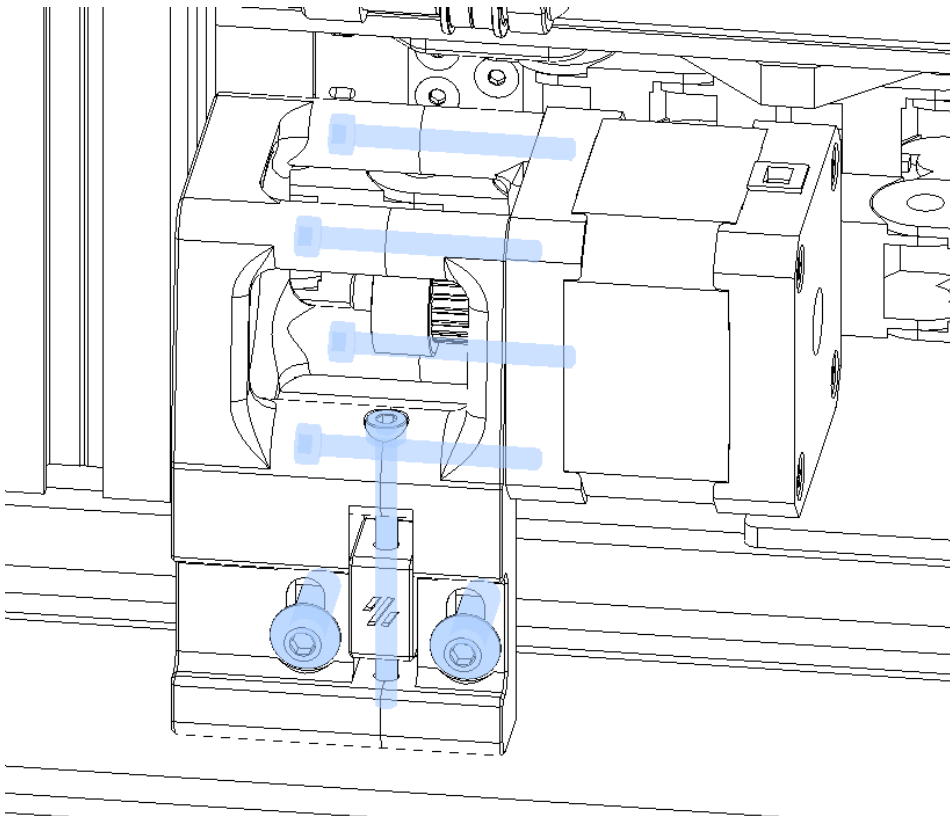- Switchwire
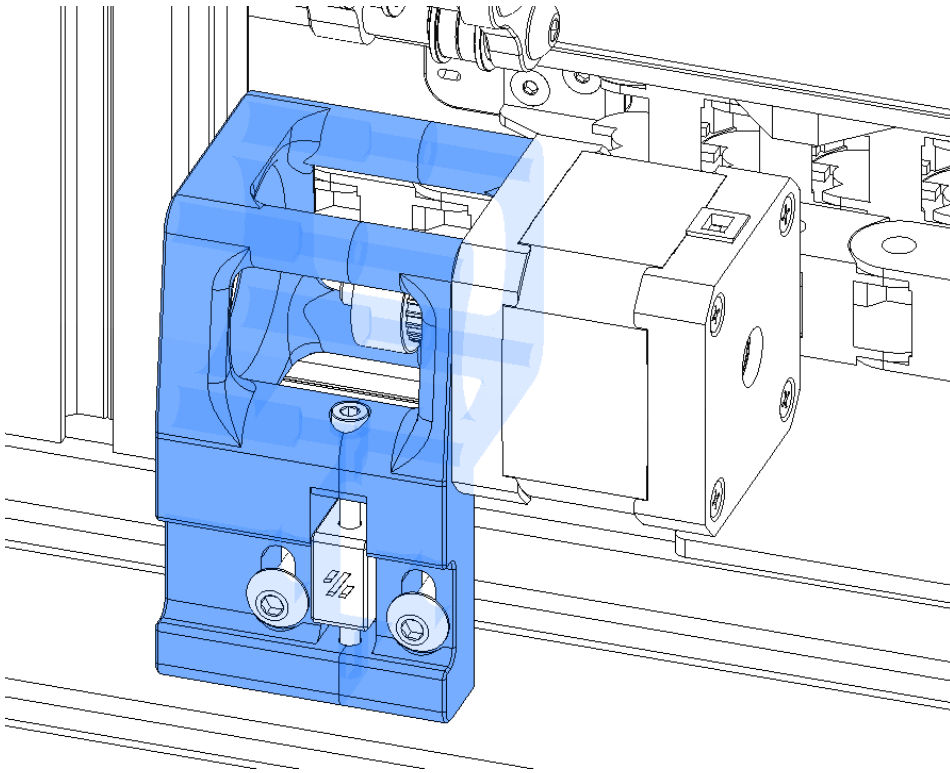- TAP
- Mini Stealthburner
- Ducks
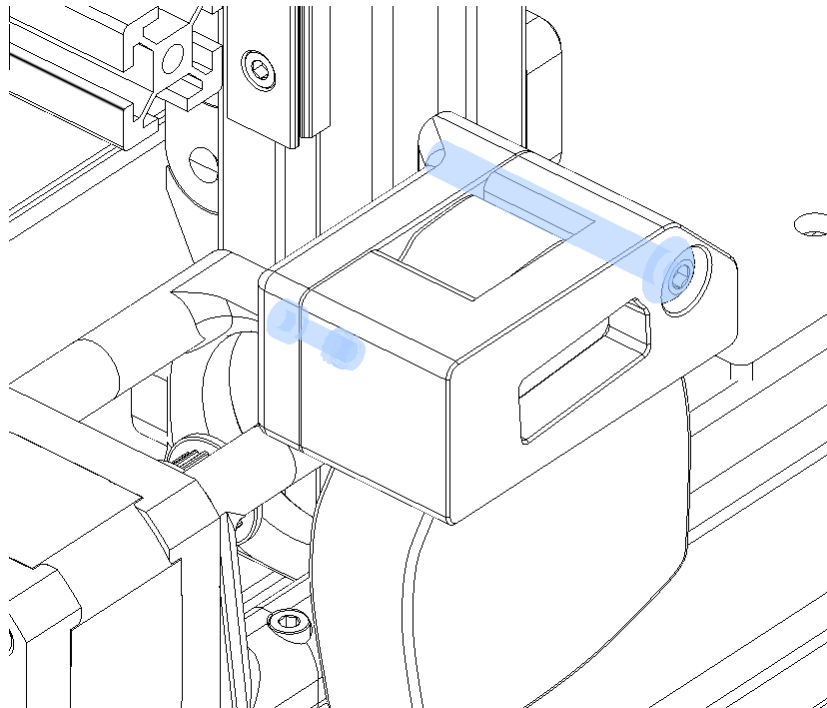
XZ-Motionsystem

Rudimentary Build Manual for Tool0-Side of the Duck.

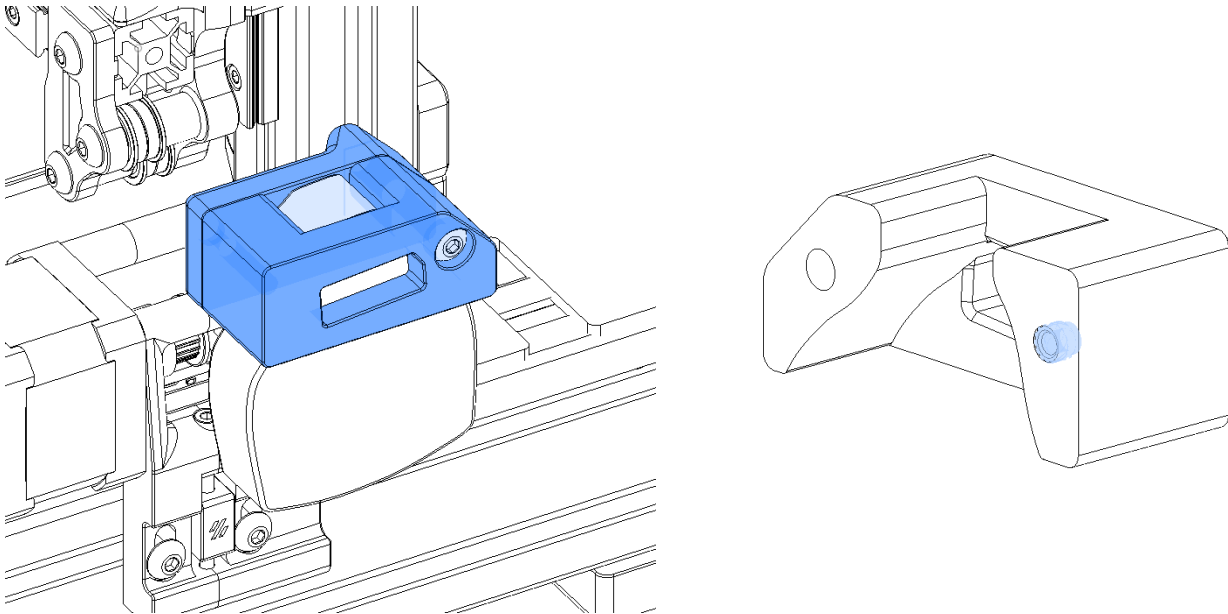You will the printed parts from:
- X2 / XZ-System

< 4x M3x30 - 1x M3x40 - 2x M5x16 - 1x heatset - 2x 3030 M5 Nut >

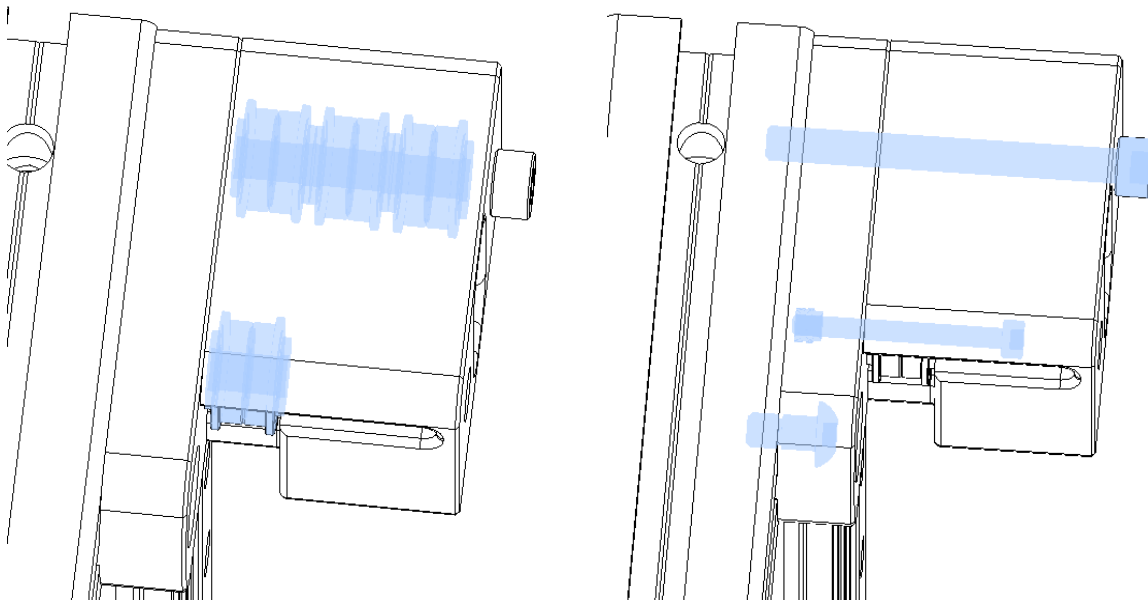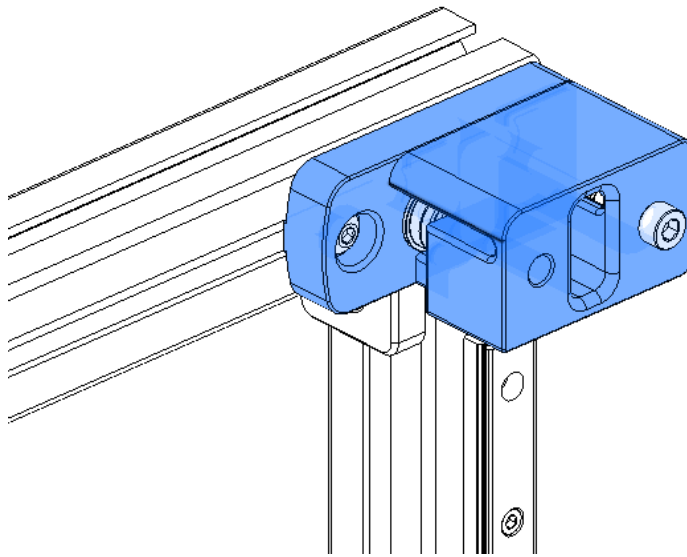Connect x_motor_mount_a and _b as shown with one of the steppers. Press the assembly flush against the z extrusion. Mirror on z-motor.

< 1x M3x10 - 1x M5x40 - 1x heatset - 1x 3030 M5 Nut >

Insert heatset, and connect both printed parts with the M3 screw. Use a M5 screw to fix the component in place slightly above the z-motor.

The Keybak will be connected to the x-axis in a later step.

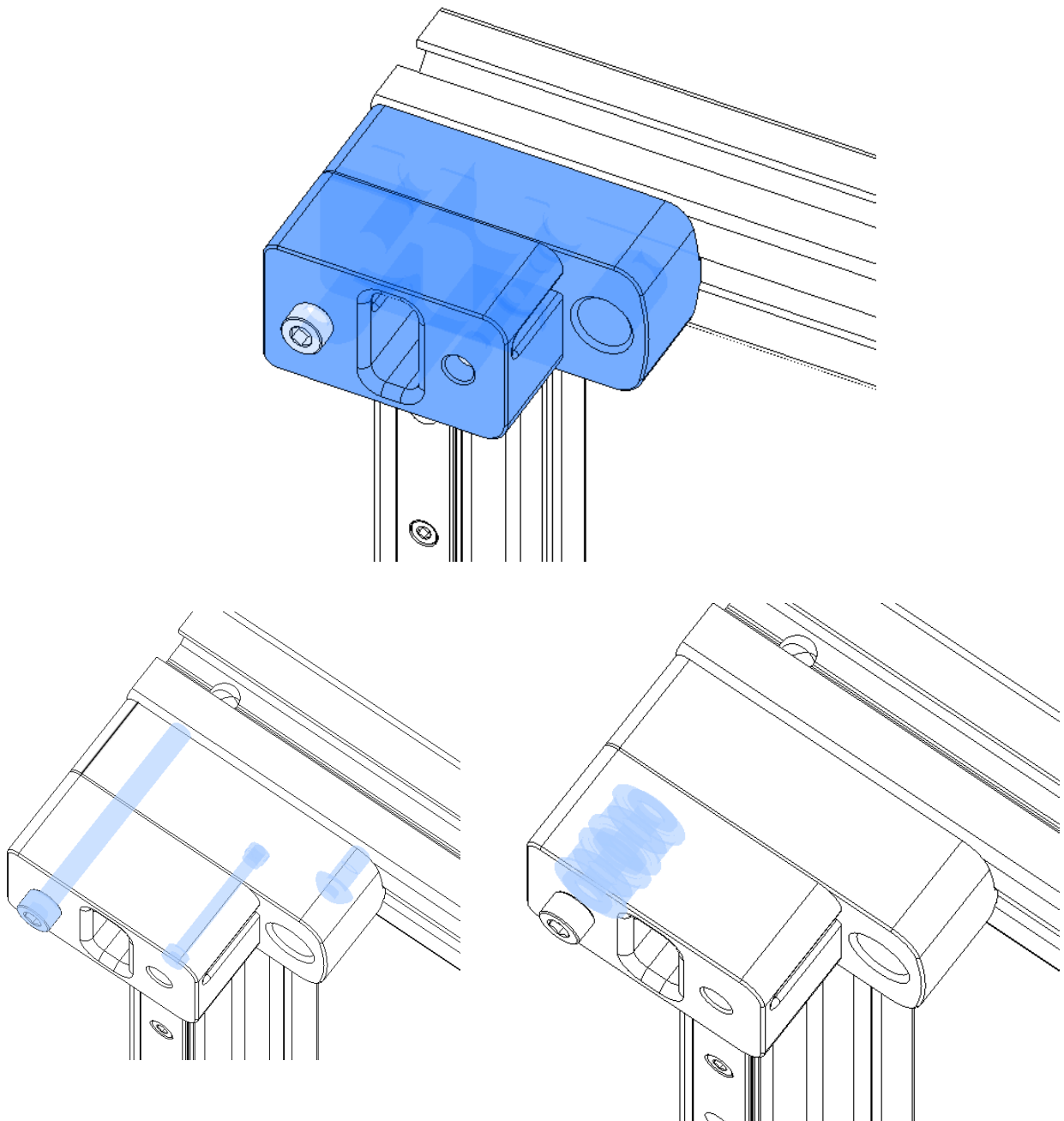**< 1x M3x30 - 1x M5x50 - 1x M5x10 - 1x heatset - 2x 3030 M5 Nut >**

Insert heatset, after that insert the M5x50 and M3x30 into the maincolour-part. Build the bearingstacks on the screws.

The line of the Keybak rides on the third stack. Depending on your Keybak, this is the time to fish the line through. Add accentcolour-part and connect both with the M3 screw.

Position the part on the edge of the frame and screw it down with both M5.

< 1x M3x30 - 1x M5x50 - 1x M5x10 - 1x heatset - 2x 3030 M5 Nut >

The left upper block assembly is similar to the right one, but simpler, hence the missing Keybak stacks. To get a better judgement, how far the heatset has to go into the accentcolour-part, it is widened before the interesting depth.
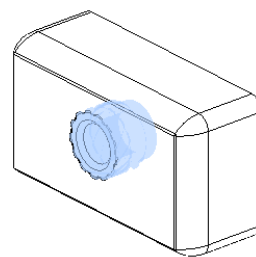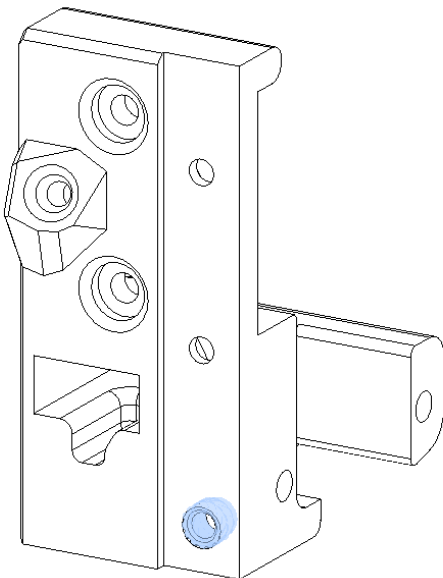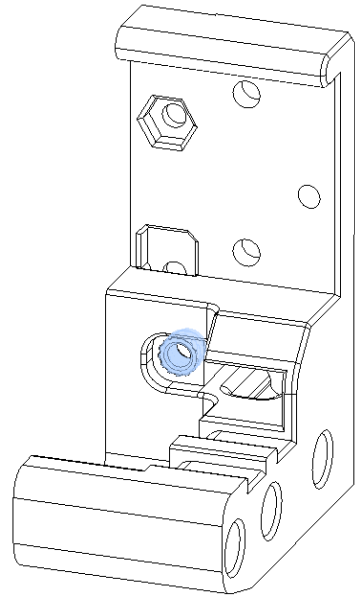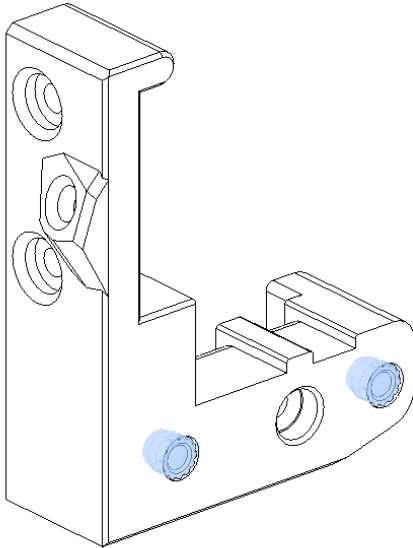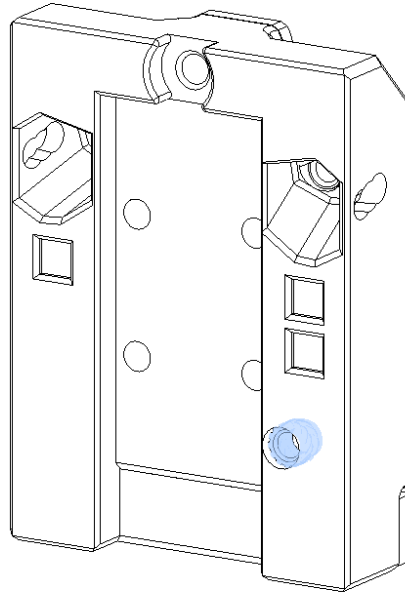
X-Carrier - TAP - Toolhead
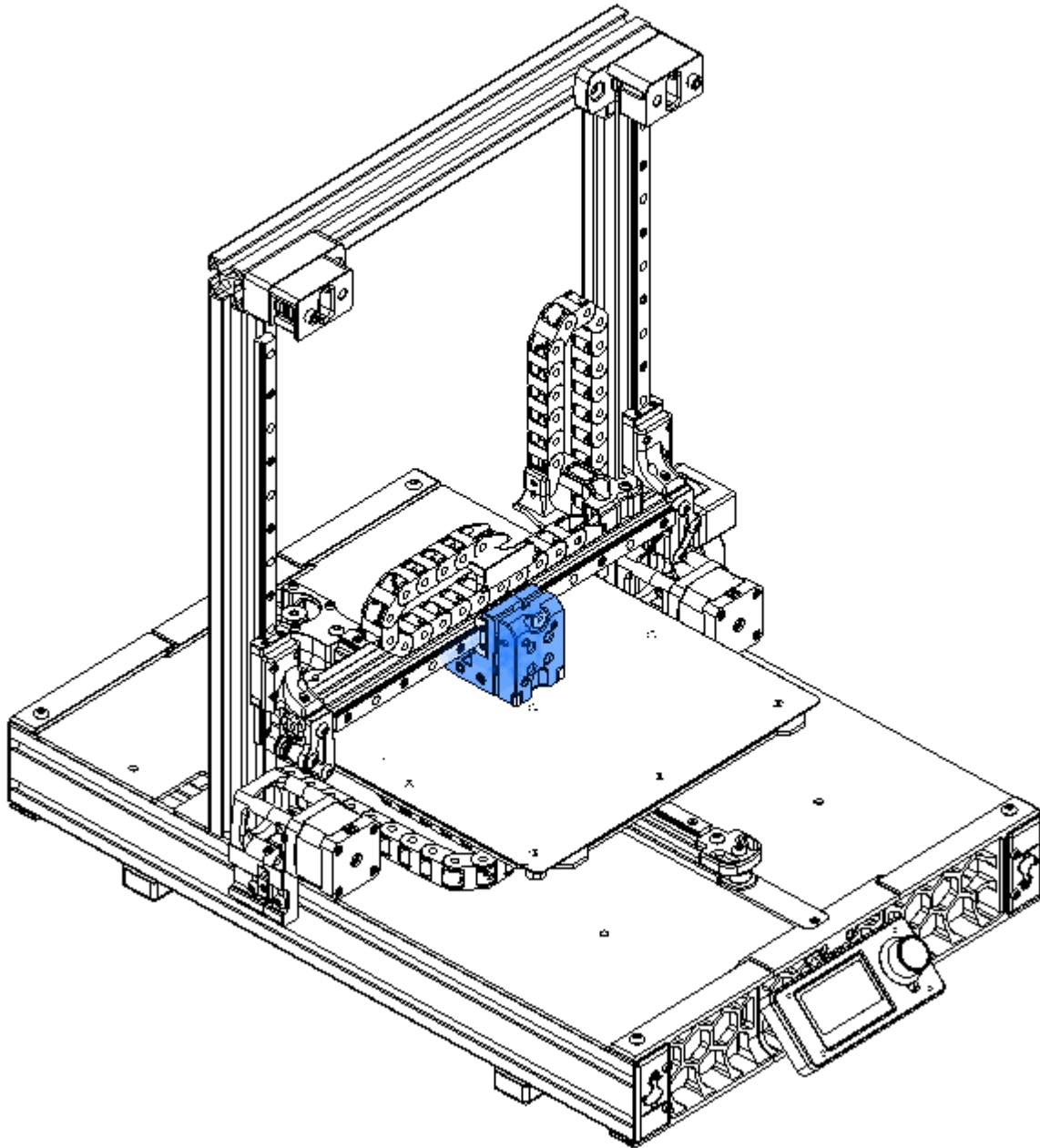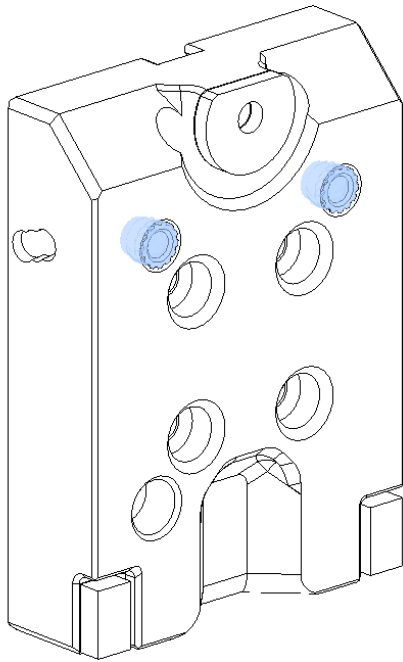
You will the printed parts from:
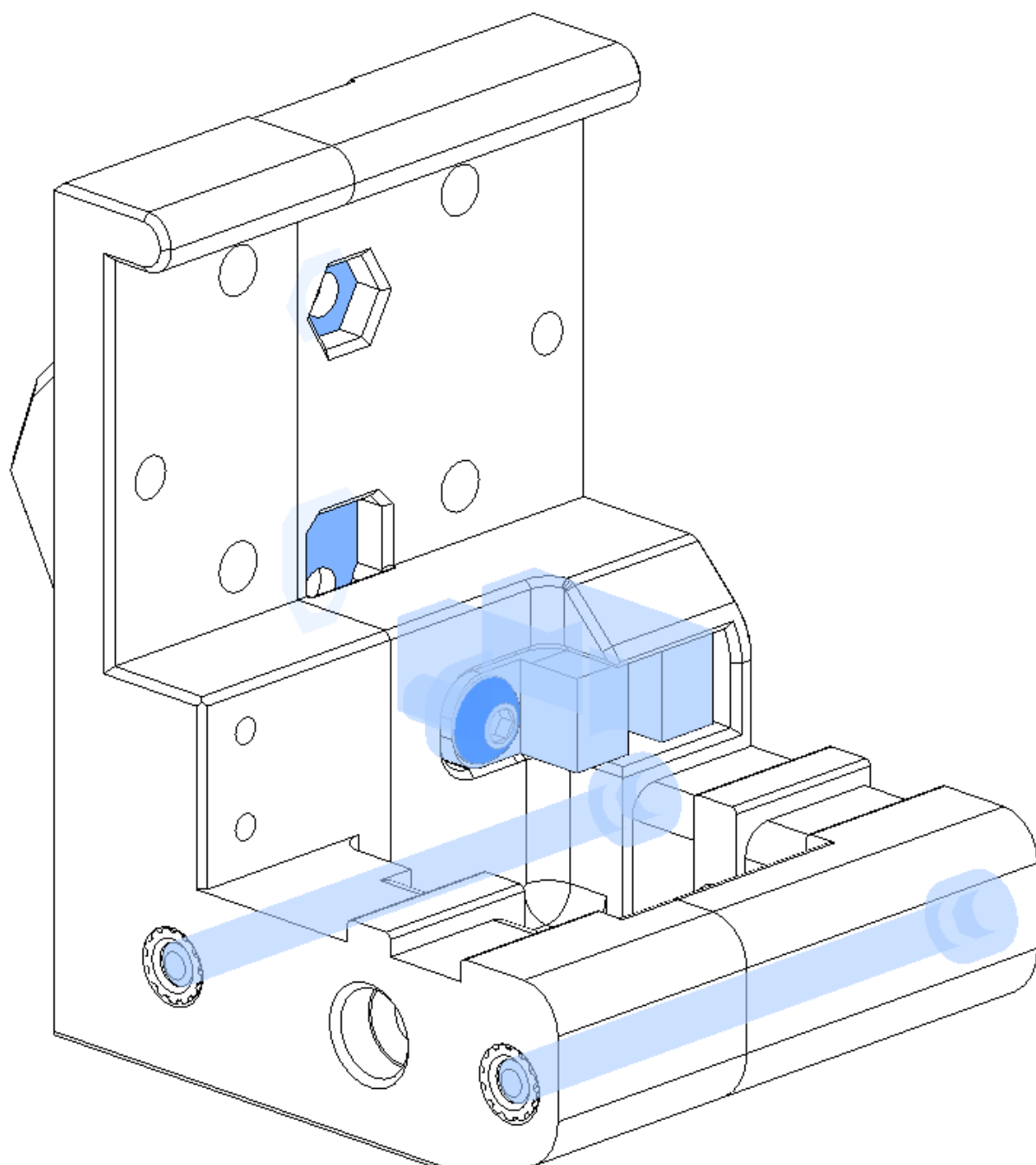- X2 / Carriage

< 11x heatset >

Insert Heatsets, all of those sit flush, bottom right picture are two similar parts.

You can remove the build in supports on this part, maybe the round one needs some conviction with a small flathead screwdriver.

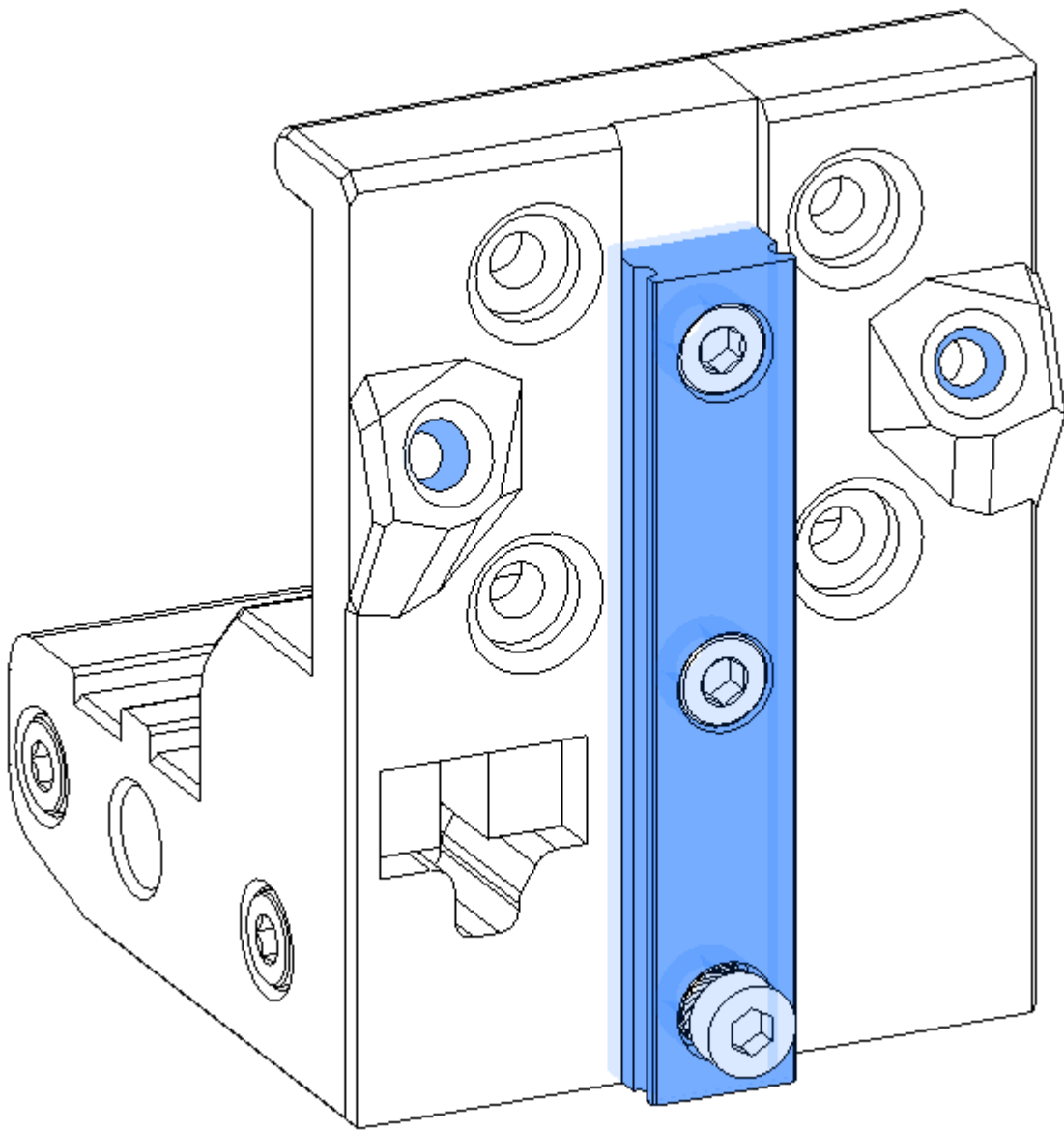Not shown: the two magnet holder pieces, which each get a heatset too.

**< 2x M3x40 - 1x M3x6 - 2x M3 Hex nuts >**

Connect both parts and insert the Hex nuts. Add the wired TAP-Sensor.
If you have one with Screw-Terminals on both side, use your flush cutter to get rid of one.

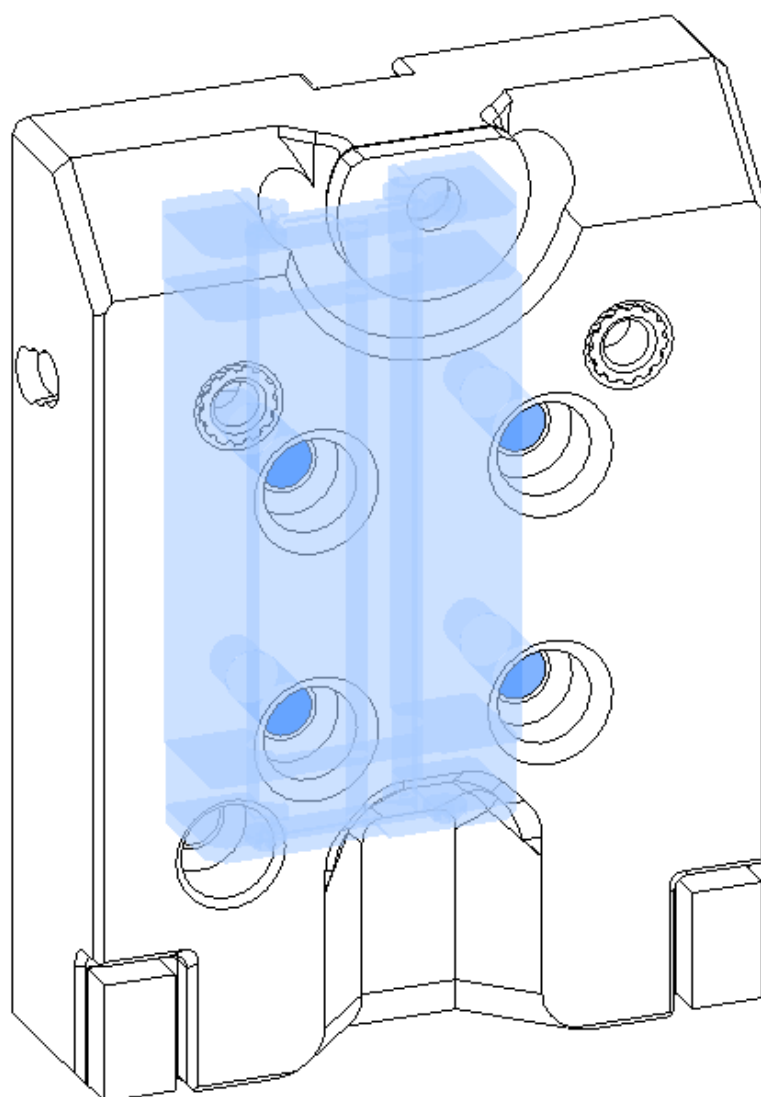**< 2x M3x6 FHCS - 2x M3x6 - 1x M3x12 - 1x heatset >**

Screw the magnetic M3x6 into the elevated parts. Add the TAP MGN9 Rail, use a heatset on the lowest screw. It is a third restingpoint for the toolhead.
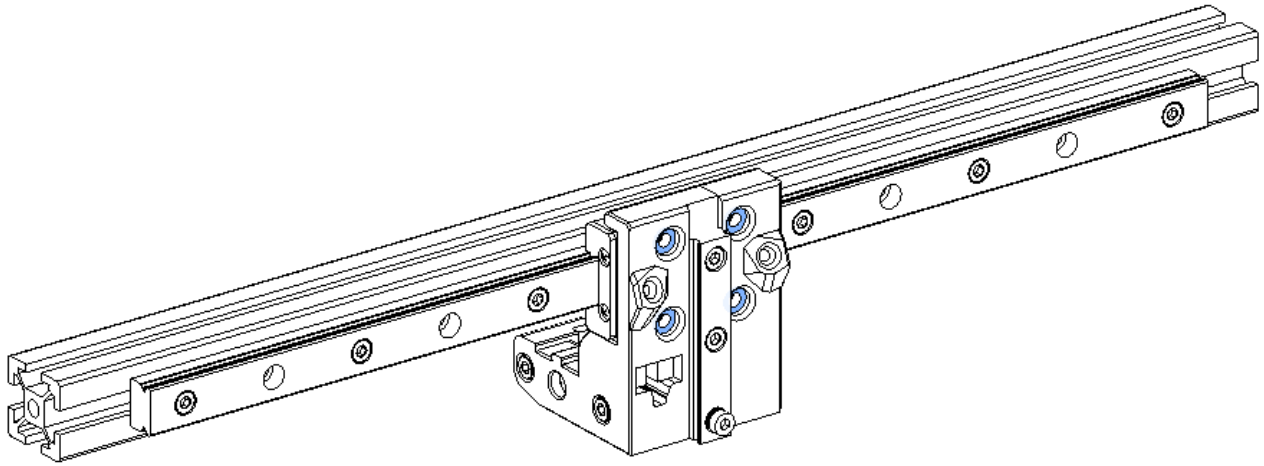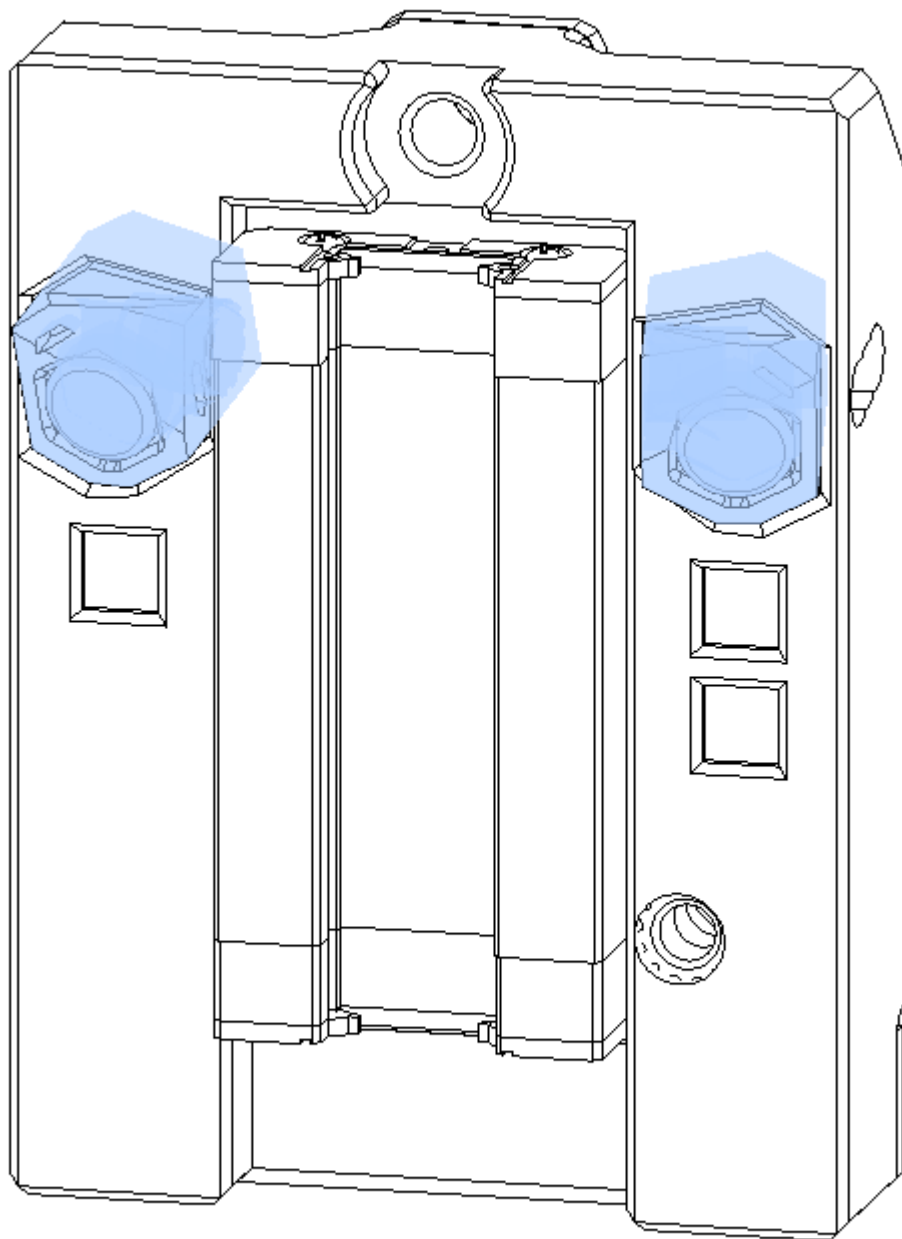
< 4x M3x8 BHCS >

At this point, you need to mount the carriage onto the x-rail. The handling of this situation will get a bit tricky.

< 4x M3x8 >

Screw the TAP MGN9 block to the carriage front. Extreme caution when handling this part in the future, as those little balls can get lost easily.

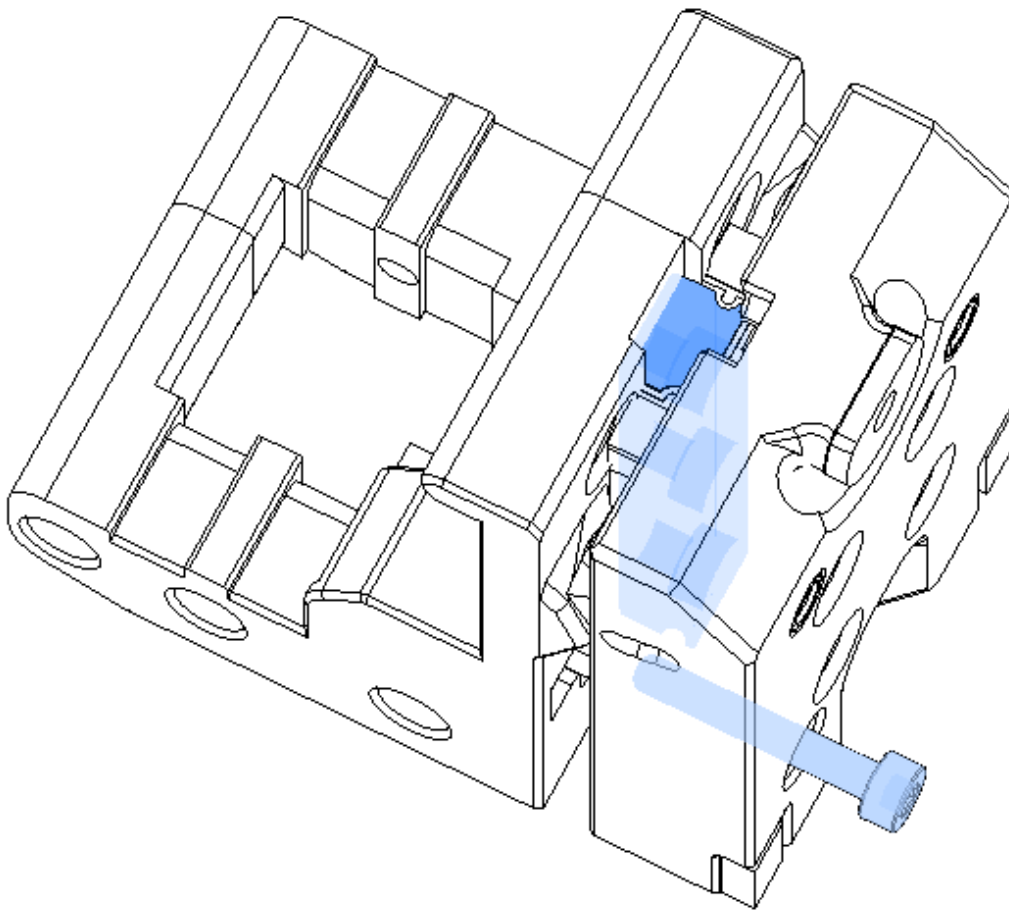**< 2x M3x10 BHCS - 2 M3 washer >**

The magnet holder thingies are marked with dots, the part has similar markings to help you find the right spot for them. Push them all the way in, check loose fit and tack them lightly in place with the screws.
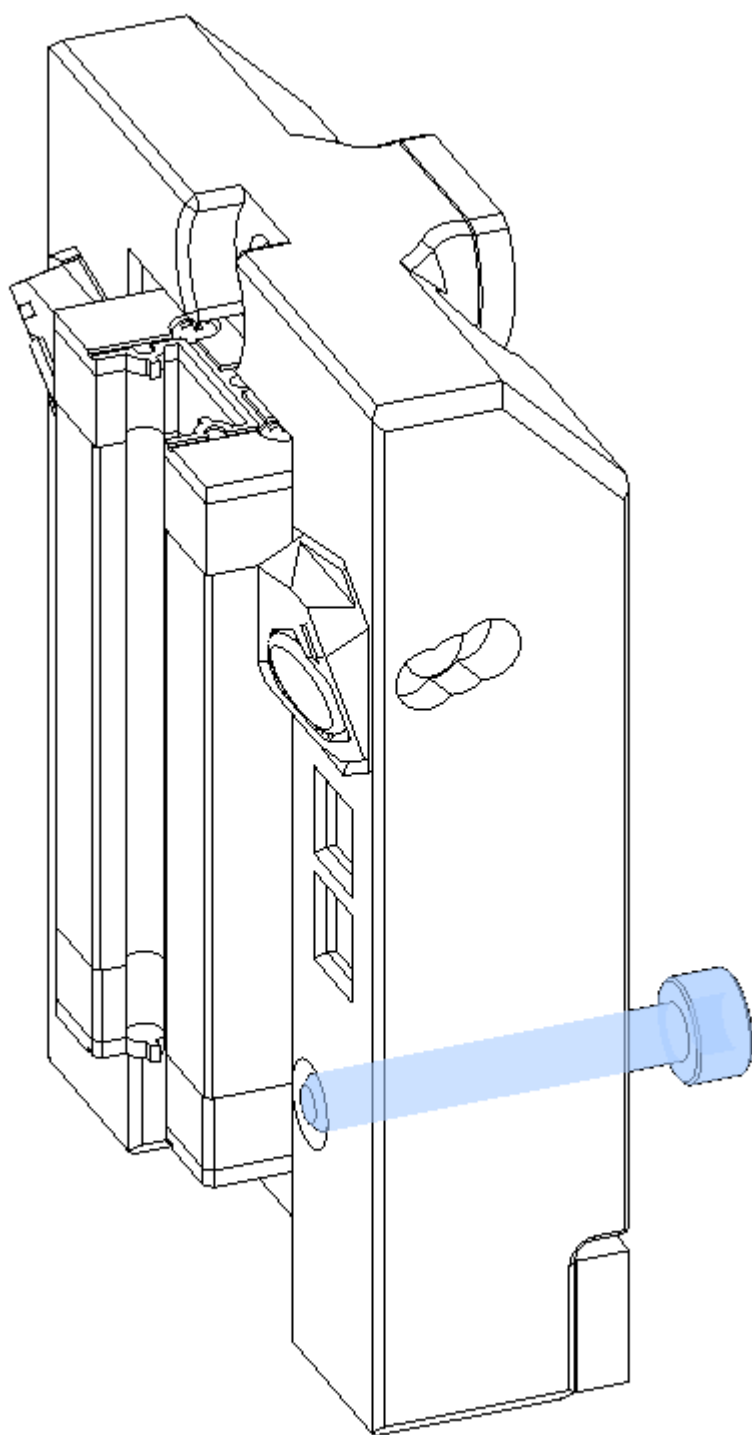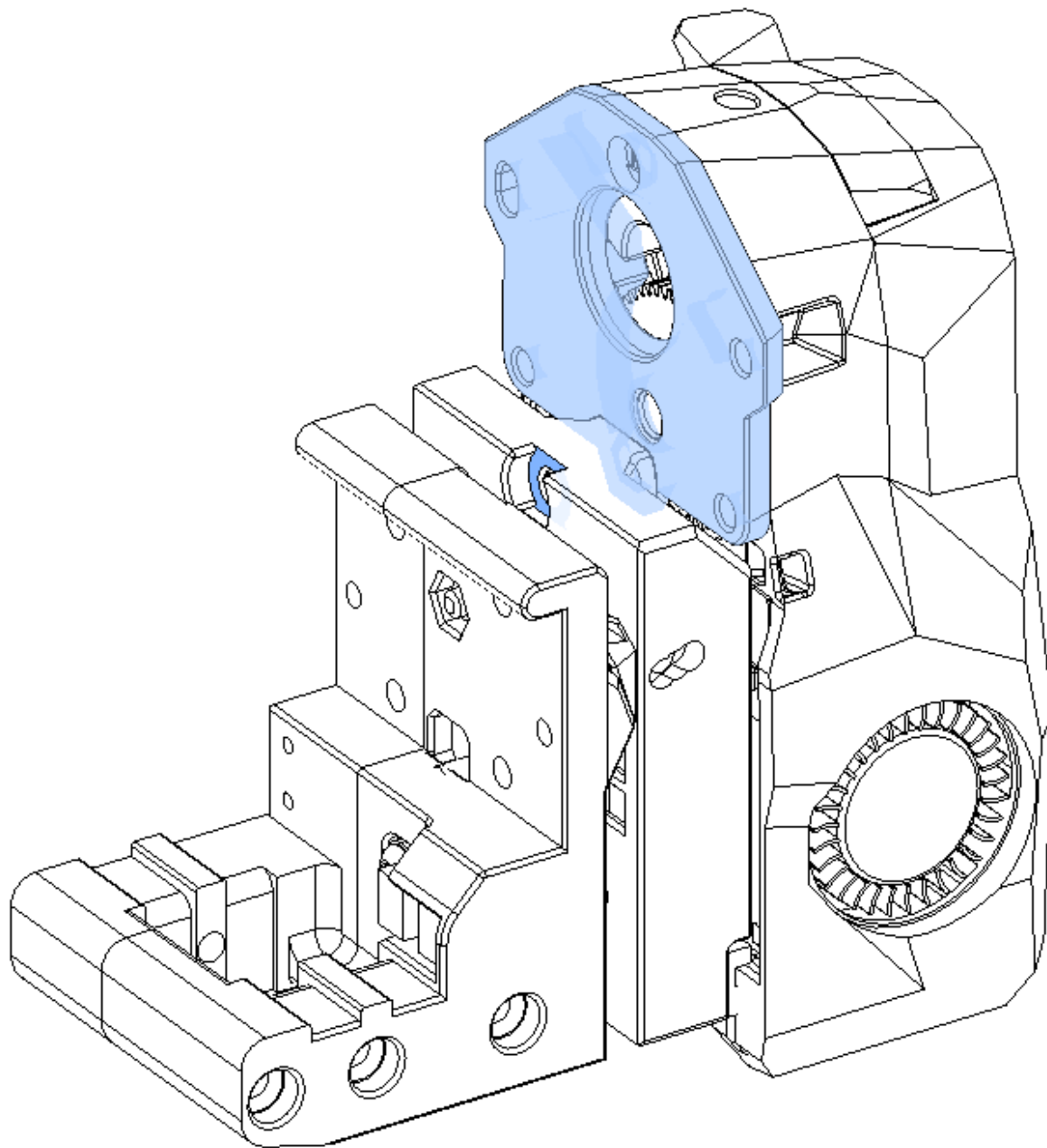
< 1x M3x20 >

Add the M3x20 as shown. Don't overshoot the part! This screw will be the trigger for the TAP-Sensor.

Gently slide the Carriage front on the MGN9 TAP-Rail. Be cautious, you don't want to lose any balls out of the block. Slide it all the way down and hold the parts tight in one hand. Screw the M3x20 all the way in. The screw will make sure the carriage-front will not fall off.

< 1x M3x12 - 2x M3x35 >

Build the Mini SB Toolhead to the part where you would add the motor. At this stage, connect the Toolhead to the carriage. It will get screwed in on three different spots. To reach the marked one on the picture, gently push up the carriage front. The other two are screwed in from the front.
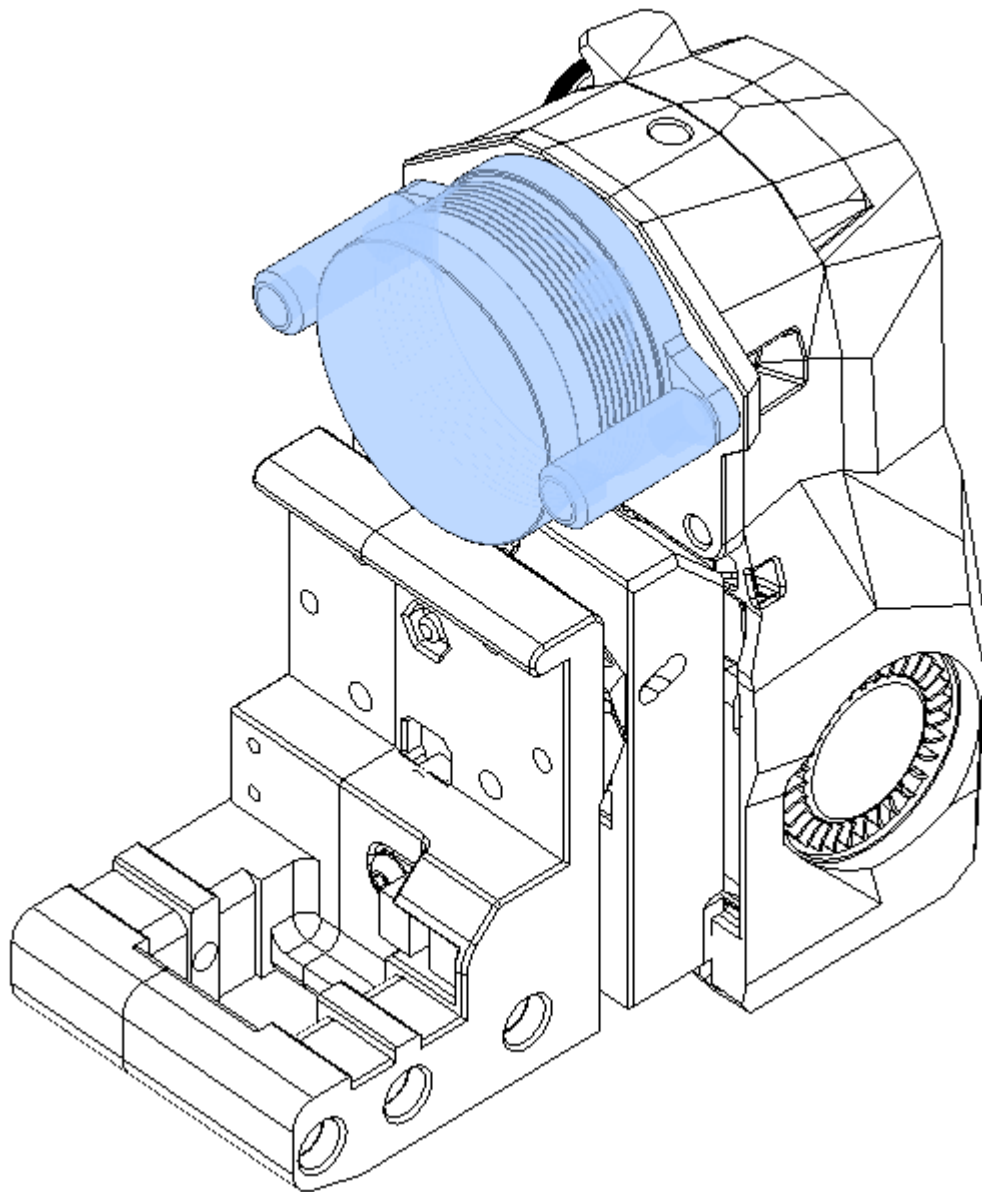
< 2x M3x10 - 4x heatsets >
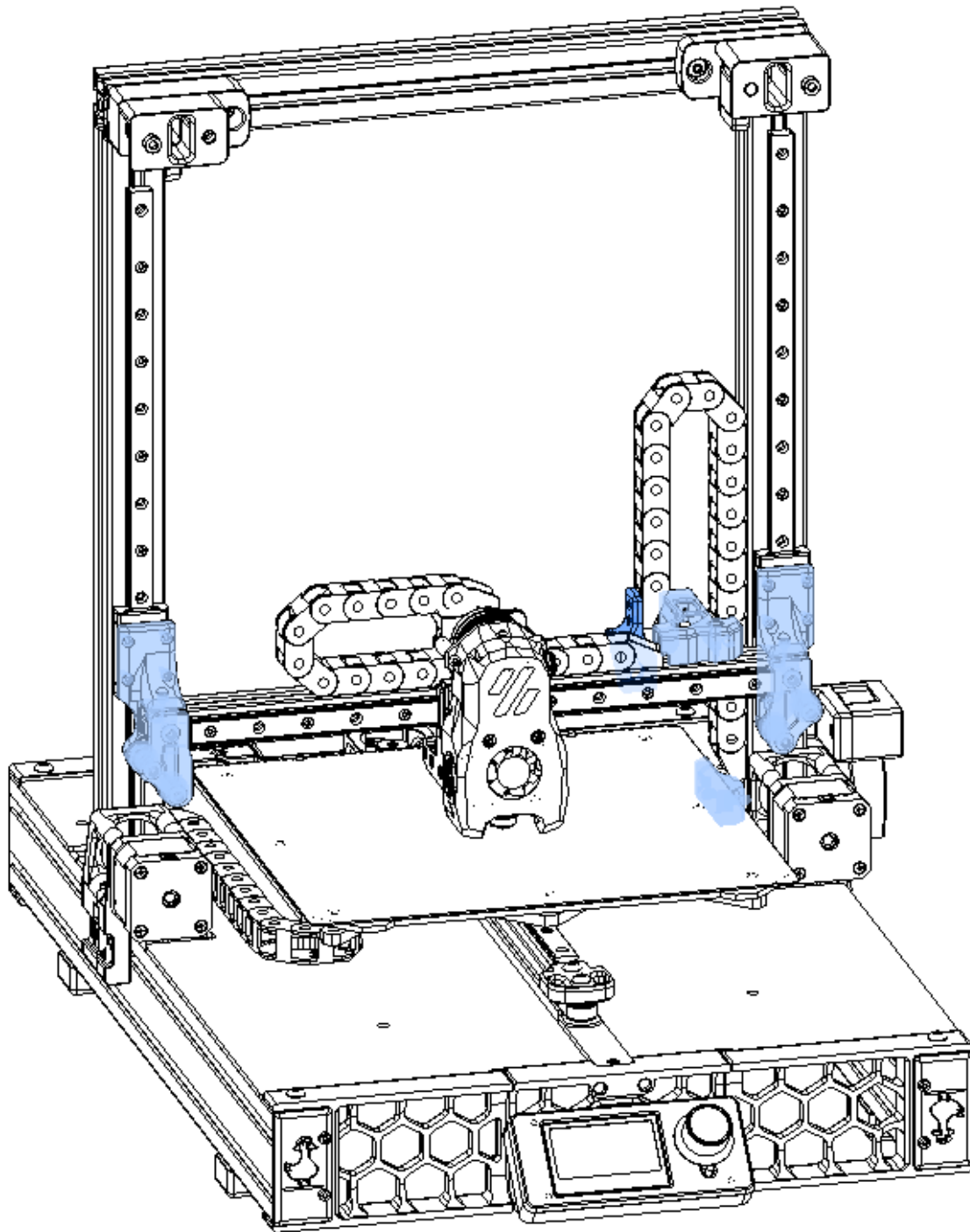Add the stepper motor and strain relief spacers as stated in the Mini-SB manual.
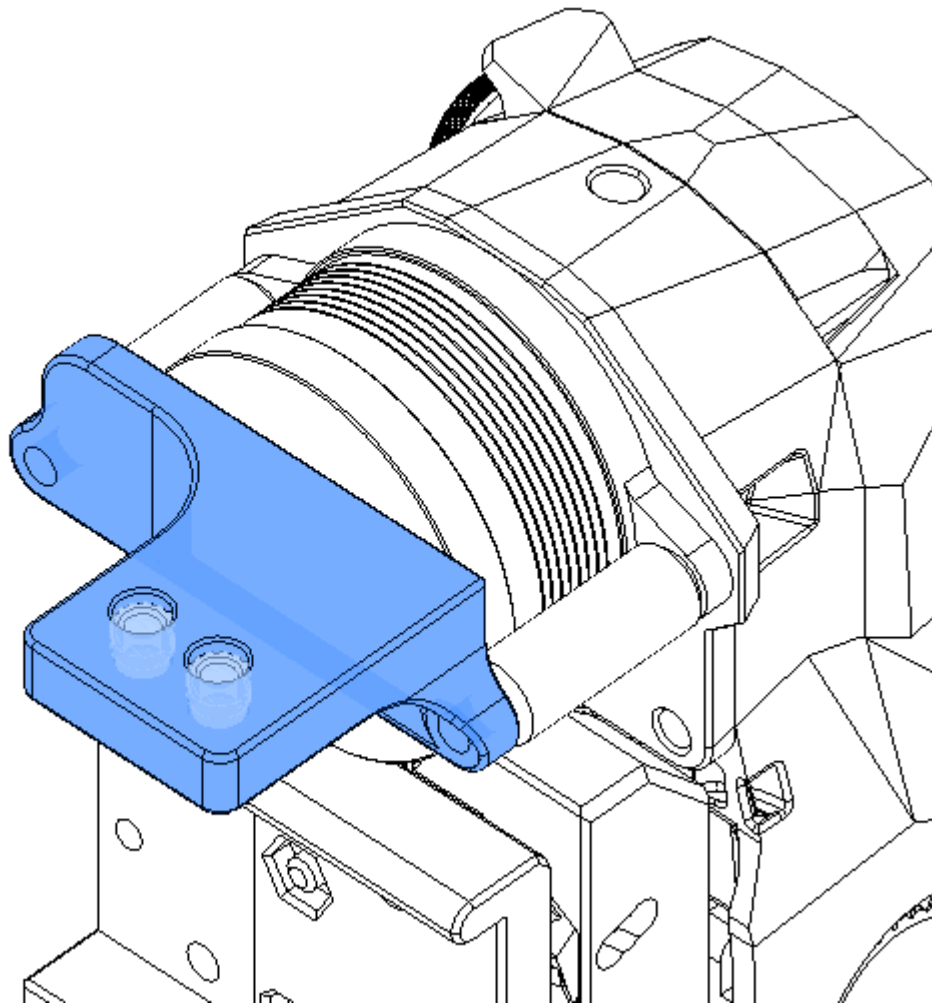
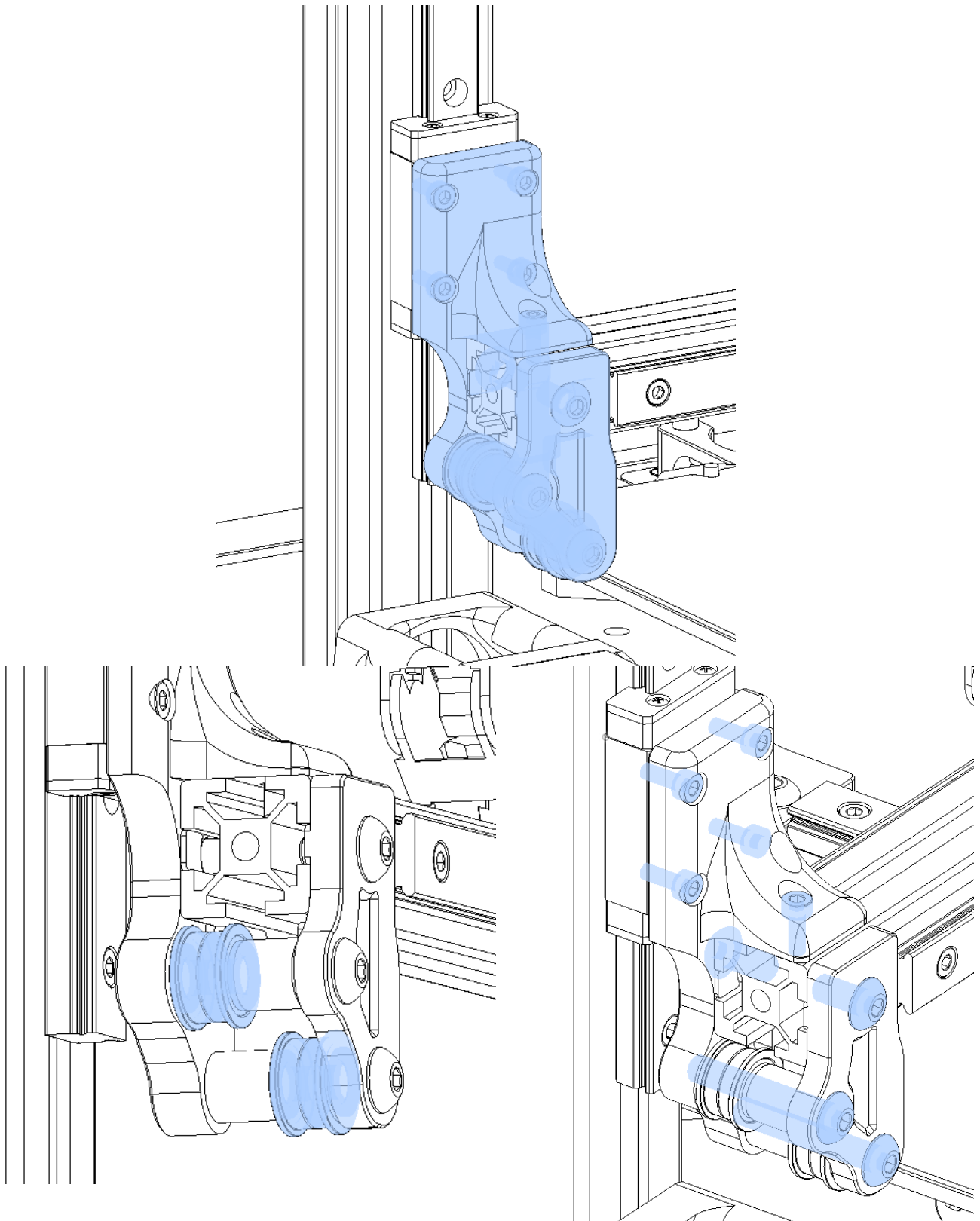**< 2x M3x8 - 2x heatsets >**

The last part is the carriage chainmount. It has another two heatsets and gets screwed in place with two M3x8s.

X-Axis & more Chainmounts

You will the printed parts from:
- X2 / X-Axis

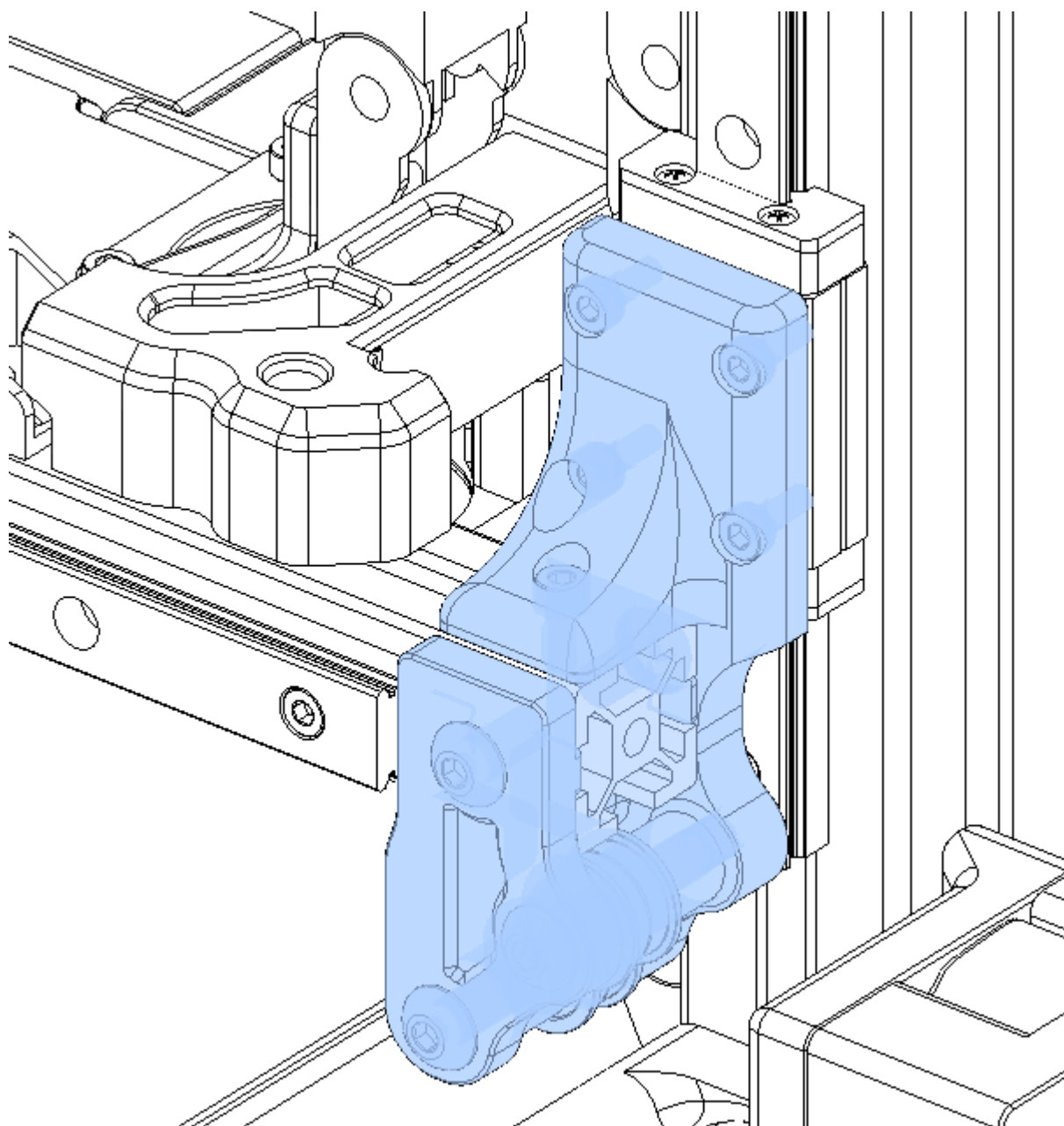**< 5x M3x8 - 2x M5x30 - 2x M5x10 -**
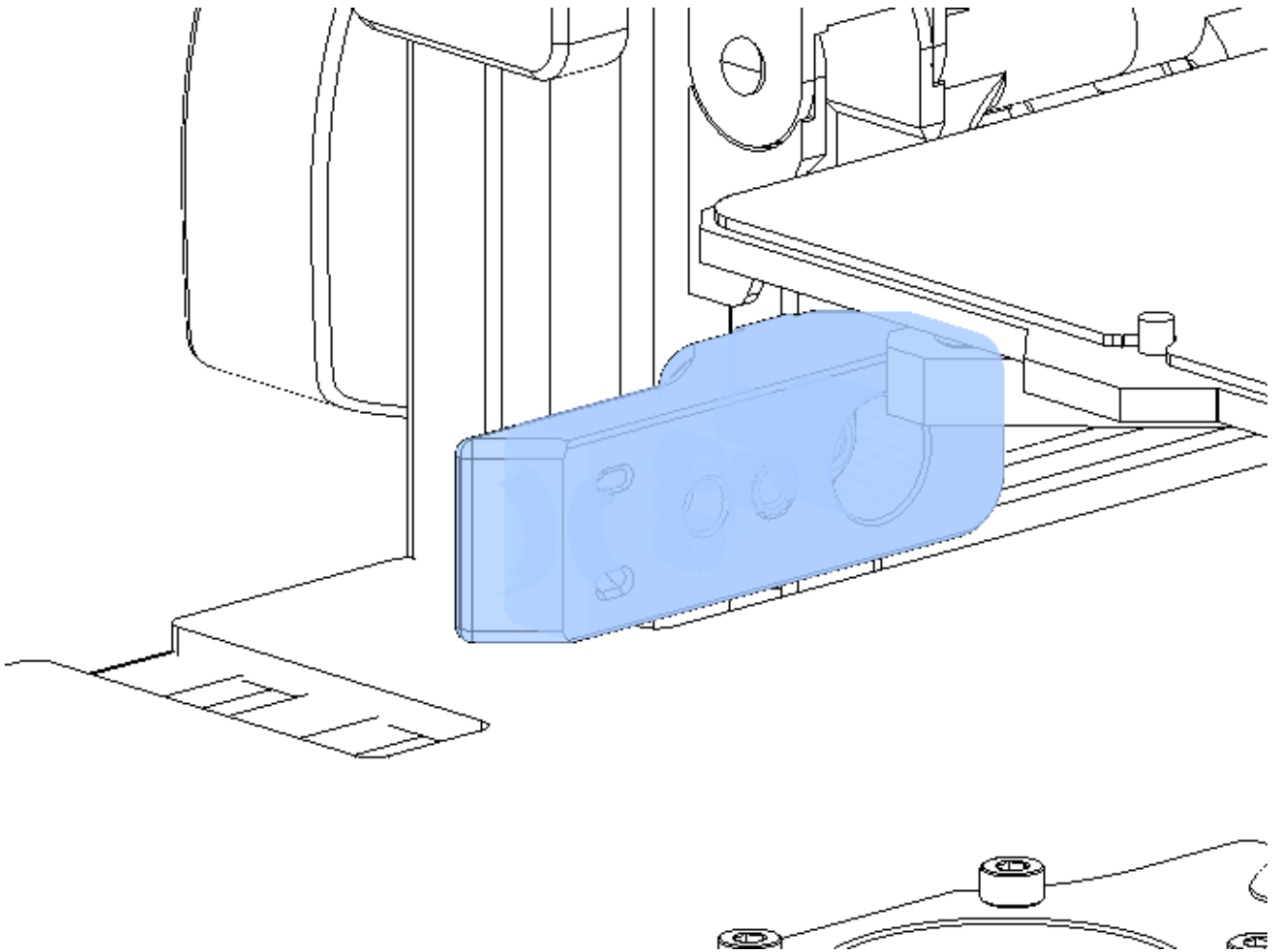**2x 2020 M5 Nut - 1x 2020 M3 Nut >** Ducky-part will snap onto 2020
extrusion, position is right on the edge of the extrusion. One bearingstack on
each M5x30, those will screw into plastic, do not overtighten.

< 5x M3x8 - 2x M5x30 - 2x M5x10 - 2x 2020 M5 Nut - 1x 2020 M3 Nut >
Identical parts and mounting as on the other side. Part sits flush on the end of the extrusion.

**< 1x M5x10 - 1x 3030 M5 Nut - (2x heatset inserts) >**

This part is used for wire management on this side of the printer. There are two anchors for zip ties.

You should have two of this part, the other one is used as y-chain-mount and for wire management of Tool1. The heatsets are not used to this state, could be used for different mods, like a cam-mount.
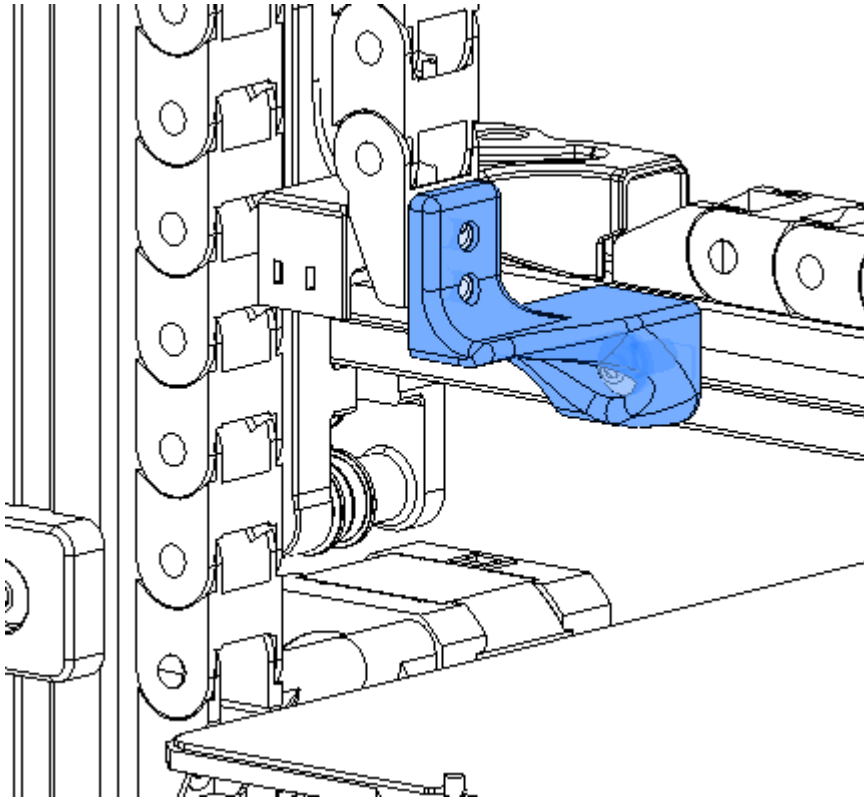
< 2x M3x6 1x M5x10 - 1x 2020 M5 Nut - 2x heatsets >

This is the upper anchor of the z-cablechain. That part is sketched for IGUS. There are two heatsets and M3 BHCS needed, to connect the cablechain. When using a generic chain, just connect it with one BHCS. It is screwed on the backside of x-axis as far on the "chainside" as possible.
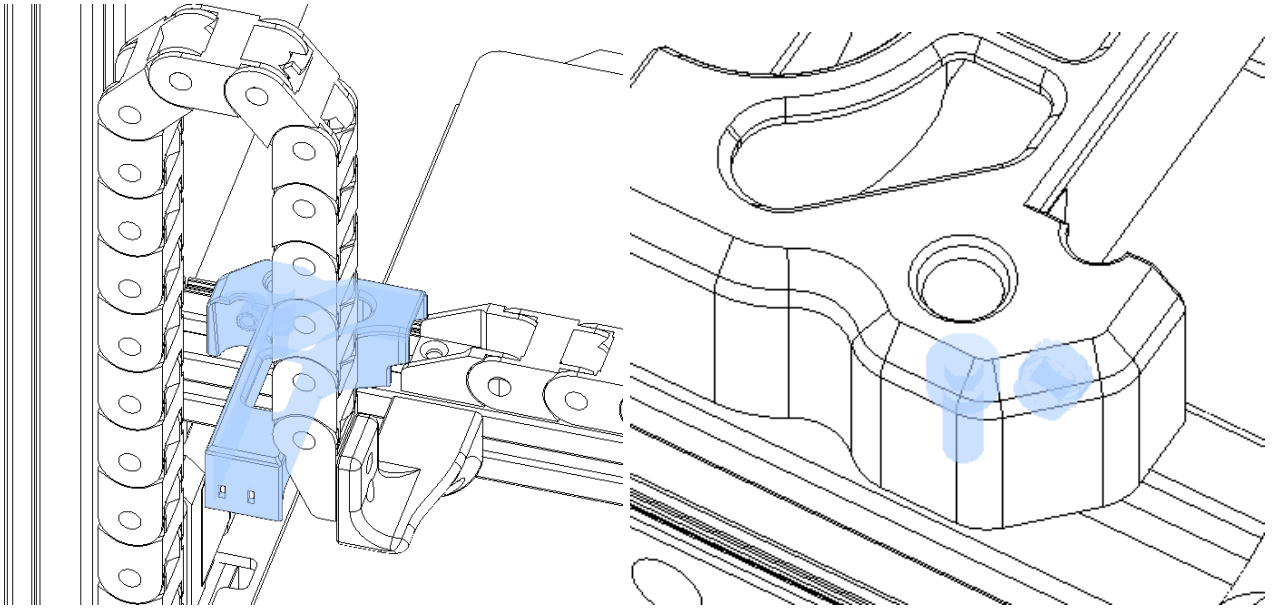
< 2x M3x8 - 1x 2020 M3 Nut - 1x heatset >

That wonderful, disturbing part is used to get the wires from z-cablechain to x-cablechain without floating in the air. On top of that, the Keybak will be connected to this part, to do its thing. Those funny holes on the backside, give you the opportunity to add another zip tie.