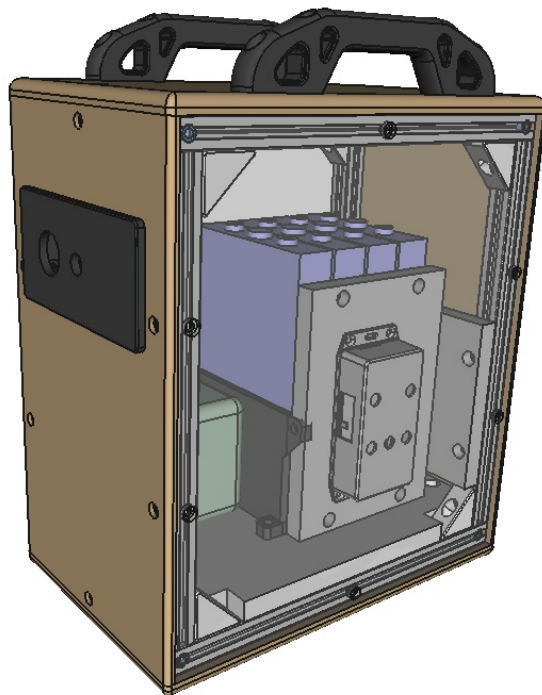


Universal Prototyping Kit



UniProKit Box-Set UPKlib V. 2.02
"Boxframe V.2 mobile" Assembly Guide
by OpenEcoLab Rahden, 08/2018



OPEN SOURCE
ECOLOGY
GERMANY

Assembly Guide for the UniProKit Box-Set

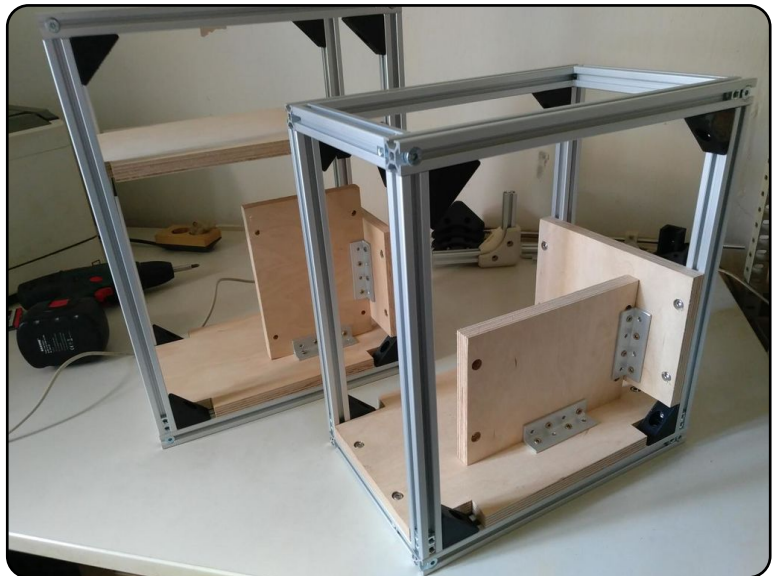
Boxframe V.2 mobile

This guide gives a graphical step by step instructional on how to assemble the Box-Kit . Normally one would assume that its quite easy and you can do this intuitively. This is true in principle.

But in practice you may find it a bit tricky, to pre-place the needed nutplates into the right slot for later use, eg. if you have finished the naked frame and then want to add the cover-plates or other interieur which assumes that there is already an appropriate nutplate in place, or better said in one certain slot of the extrusion-profile.

Depending on the stage of the assembly process it can either be still possible to move a nutplate into a slot, or not, Especially as more as you build up the frame some slots may be blocked eg. by the cornerscrews or by other beams. In this case there should already be one or more nutplates enclosed into the slot.

So its the best, to follow a certain choreography, moving some nuts into slots,



then assemble a beam which encloses them.

Then again move some nuts into just these slots, which will be enclosed in the next assembly-step.

The guide aims to keep you an overview, which nuts to insert into which slot at a given step and then shows the next assembly step, to help you avoid forgetting some nutplates and having to disassemble later certain corners for moving the forgotten nutplates into it.



It's a bit like solving a rubiks-cube, as long as every step is applied at the right time and the right order, solving the puzzle is quick and easy.

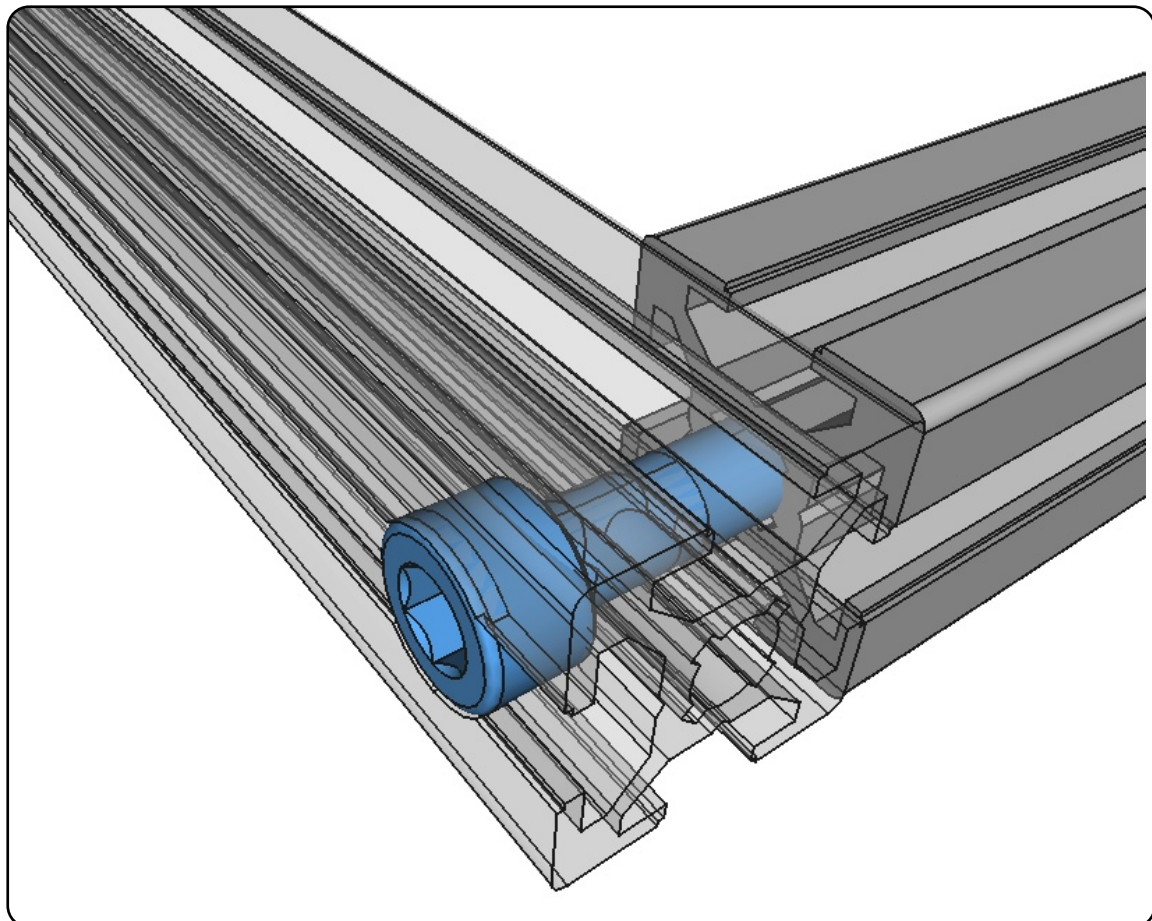
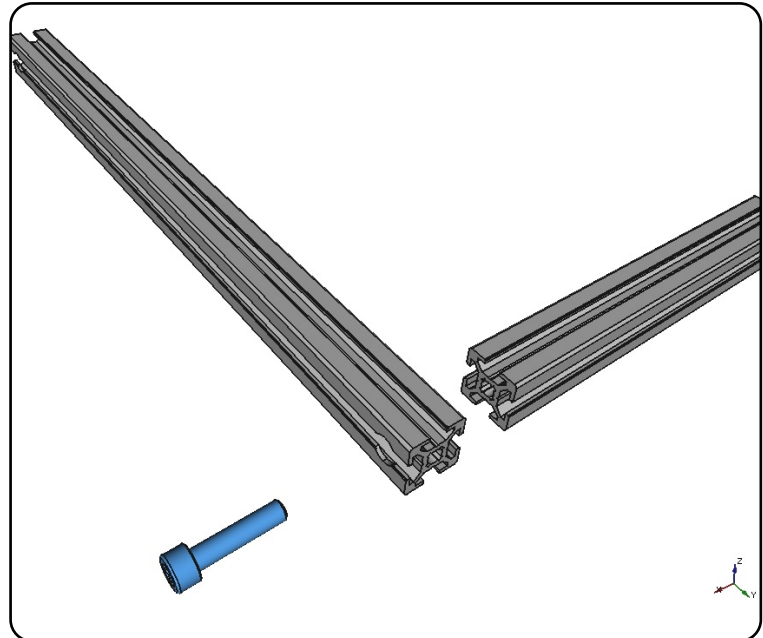
Furthermore we start with building the upper frame, the lower frame and the upright pillars as sub-assembly-groups, before connecting all totgether to a three-dimensional frame-structure.

The upper frame

Needed Parts:

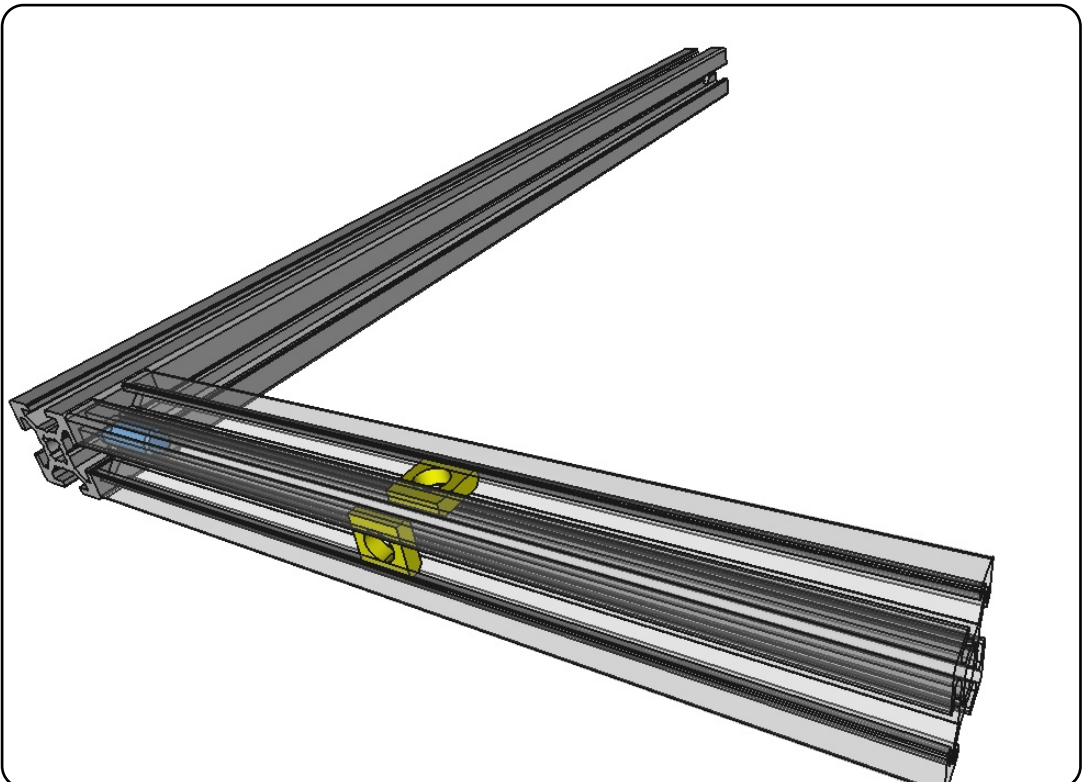
2 x Tslot32con
2 x Tslot16
4 x M6x25cyl
6 x M6nutplate

Step 1: Make a corner junction between a Tslot32con and Tslot16 by a M6x25cyl screw.



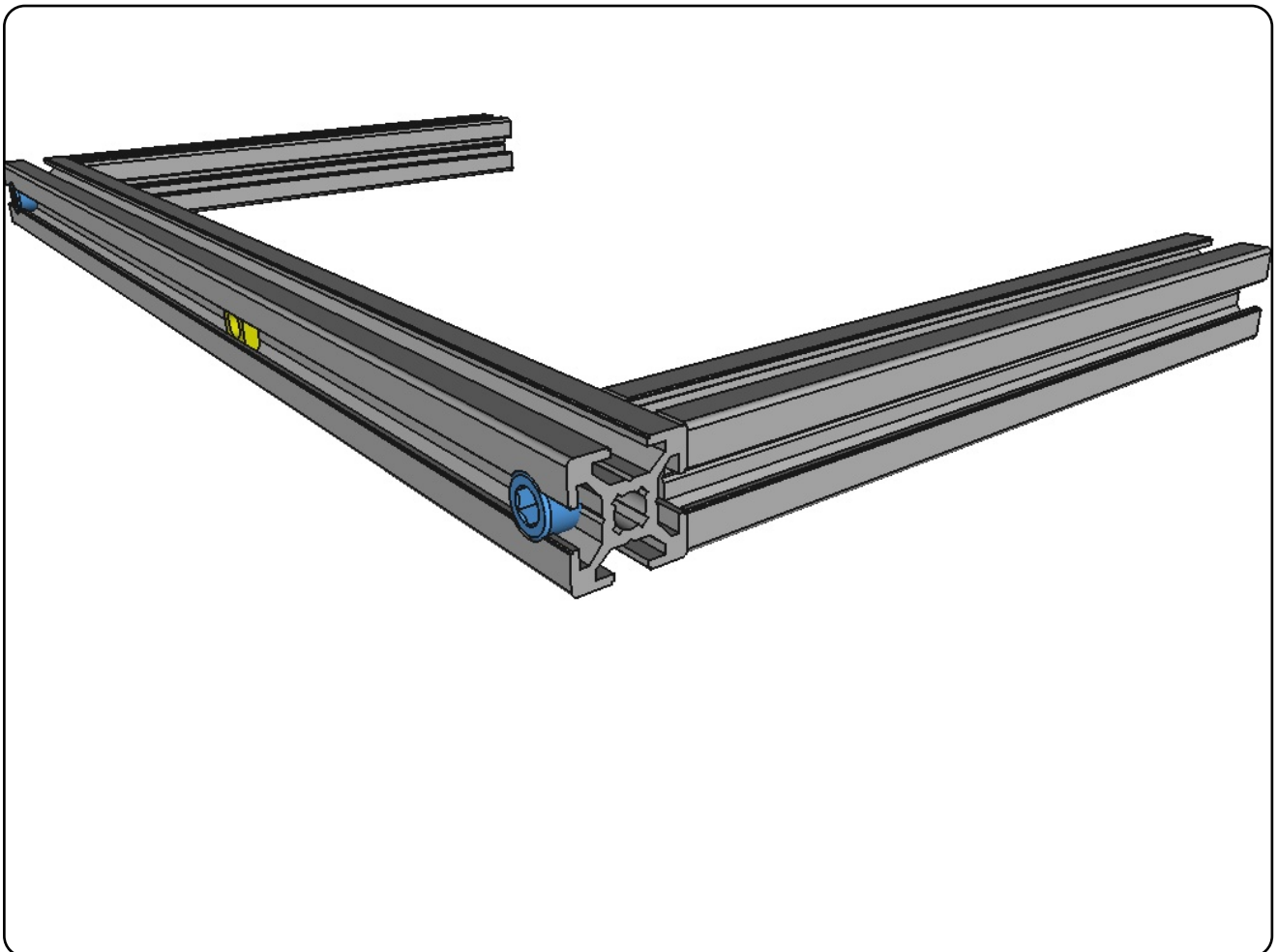
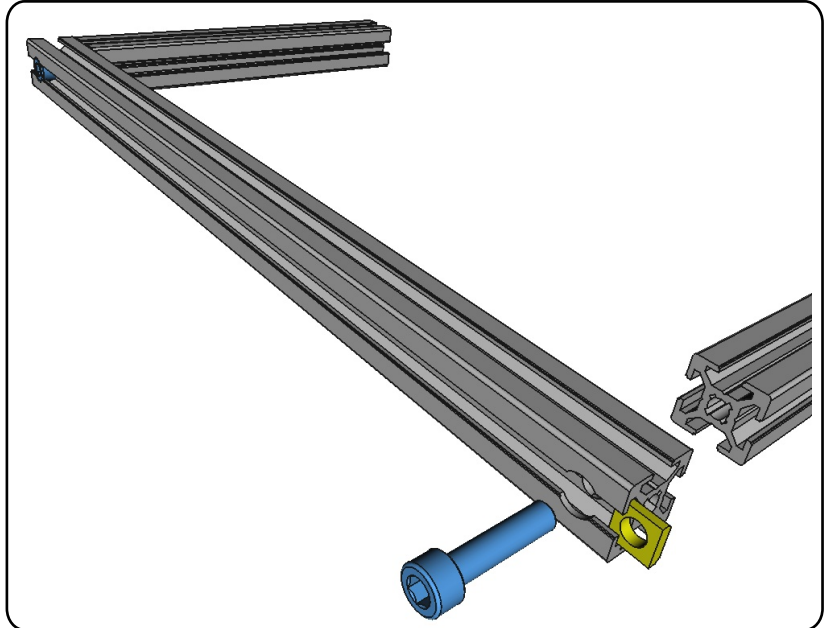
The upper frame

Step 2: Insert two M6nutplates into the upper and the outer slot of the Tslot16-beam.



The upper frame

Step 3: Before connecting the second Tslot16-beam you must insert a nutplate into the outer slot of the long Tslot32con, which will be enclosed by the M6x25cyl during the corner-connection.

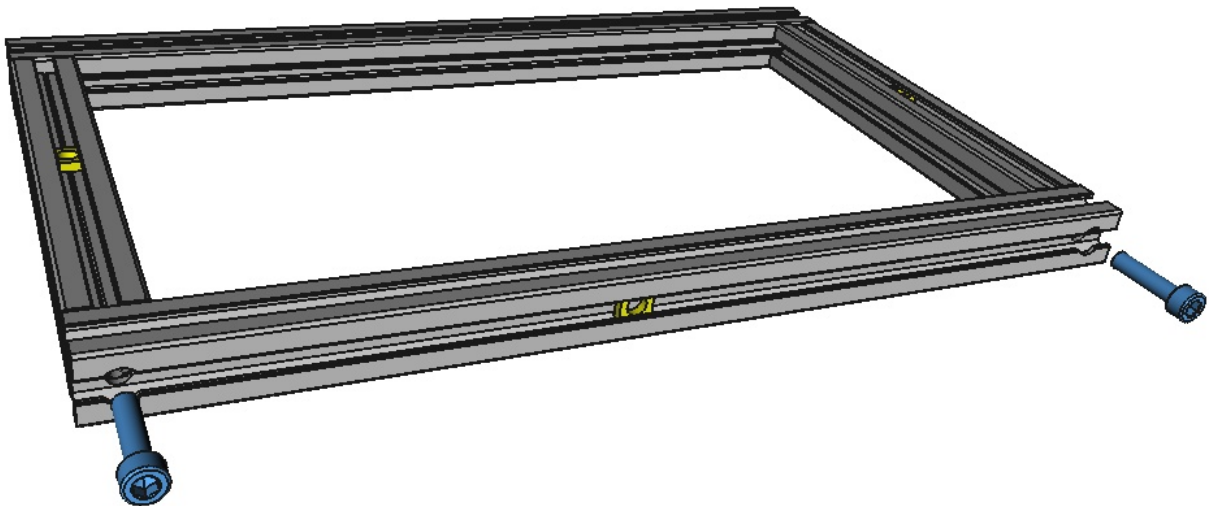
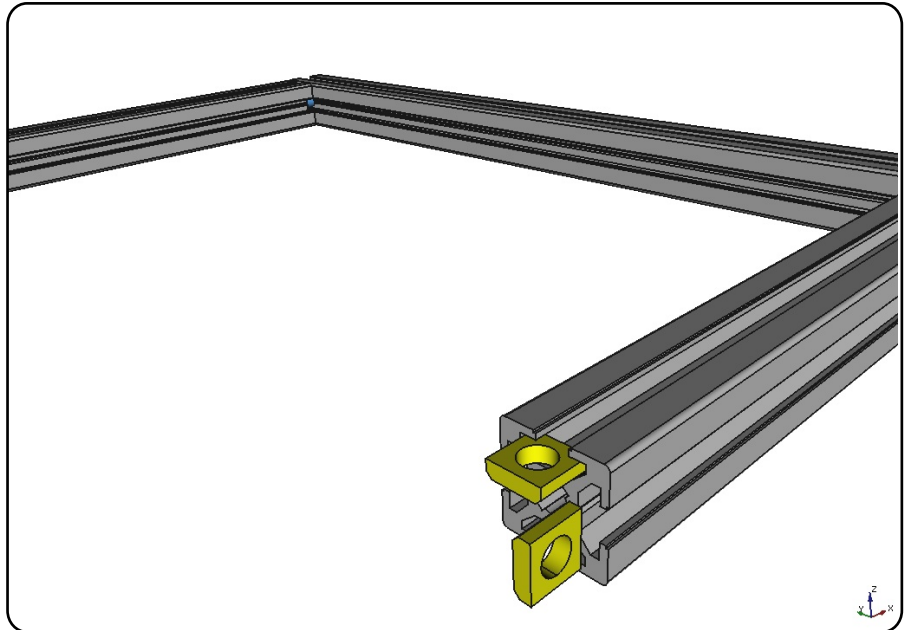


The upper frame

Step 4: Insert now two M6nutplates into the upper and the outer slot of the second beam.

If that is done you can close the frame by the remaining Tslot32con and the two M6x25cyl, but before fastening the second screw, insert the last M6nutplate into the outer slot of the Tslot32con.

Now you are done with the upper frame !

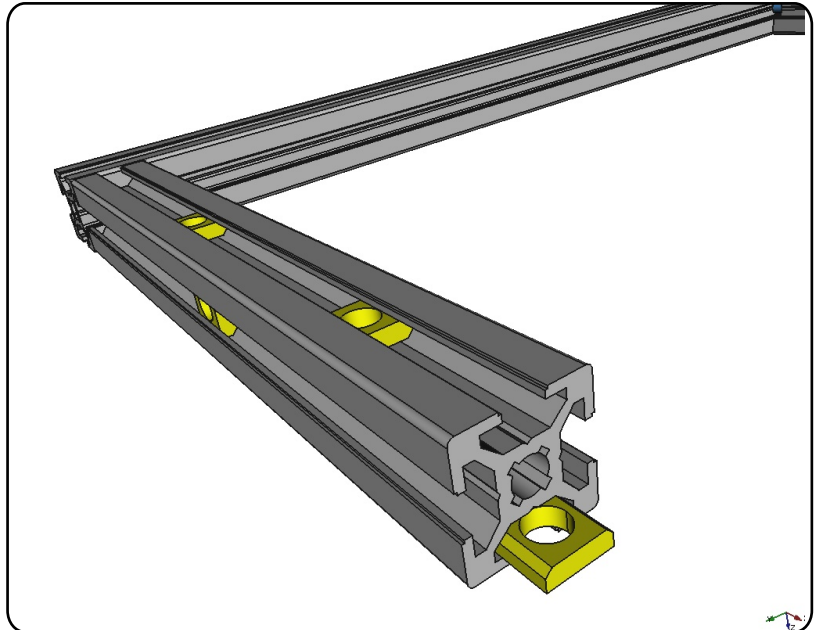


The lower frame

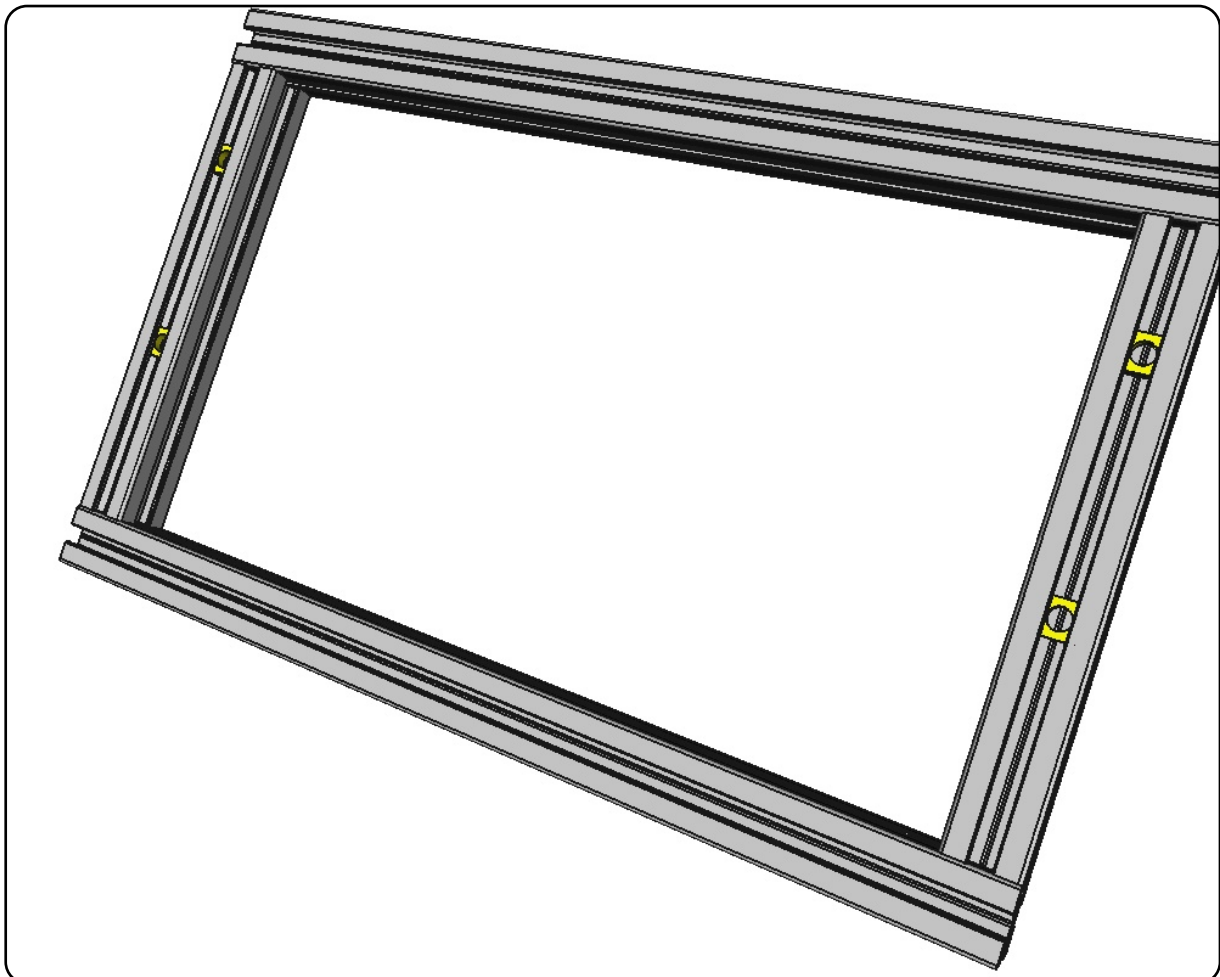
Step 5: The assembly of the lower frame is exactly the same procedure as for the upper frame, with one exception:

In Step2 and Step 4 you have to add four M6nutplates instead of only two.

Insert therefore two M6nutplates into the upper slot and one into the lower slot underneath and one into the outer slot as usual. Do the same with the other Tslot16 and apart from that repeat the Steps 1 to 4



Now you are done with the lower frame !

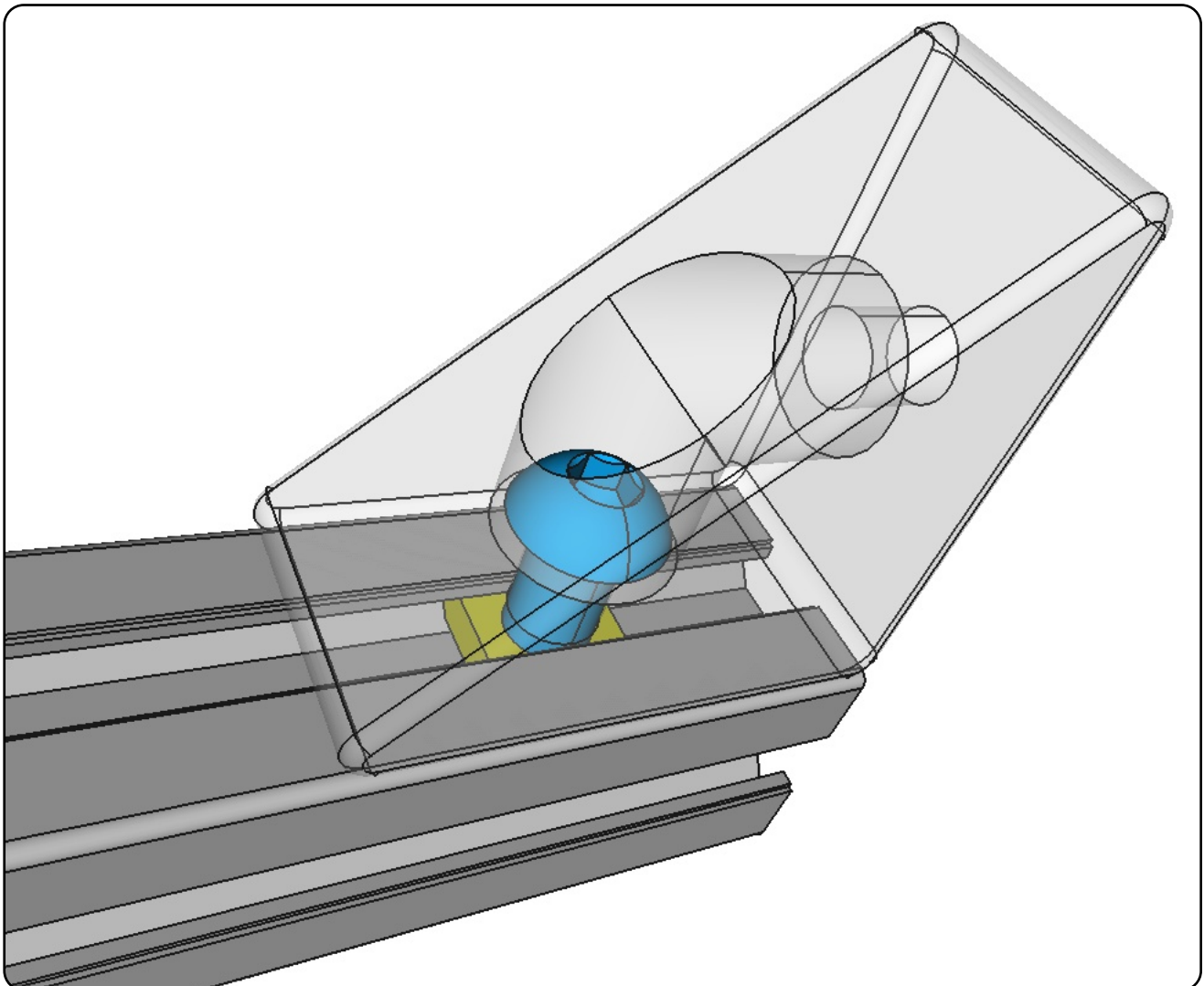
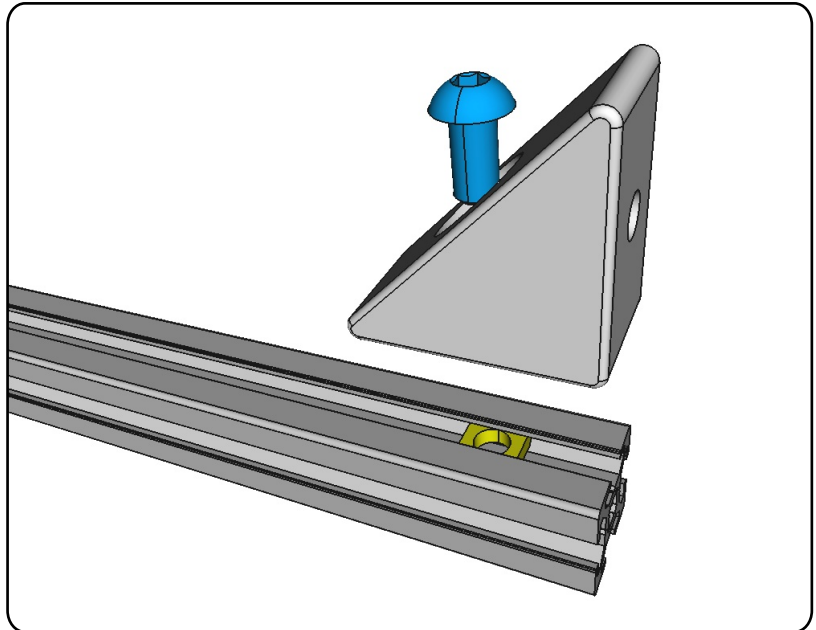


The upright pillars

Needed Parts:

4 x Tslot32
8 x RAconnector
8 x M6x12
16 x M6nutplate

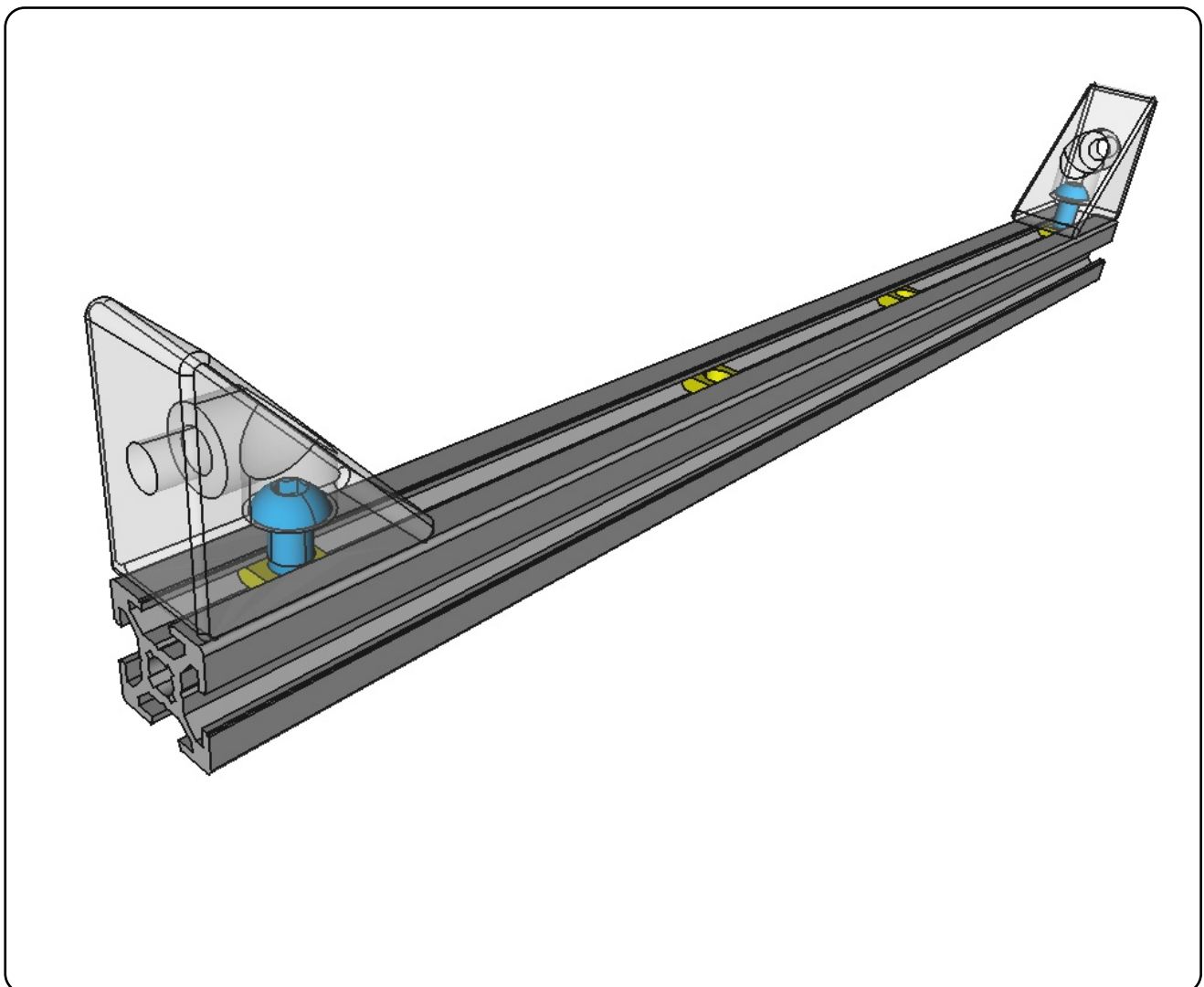
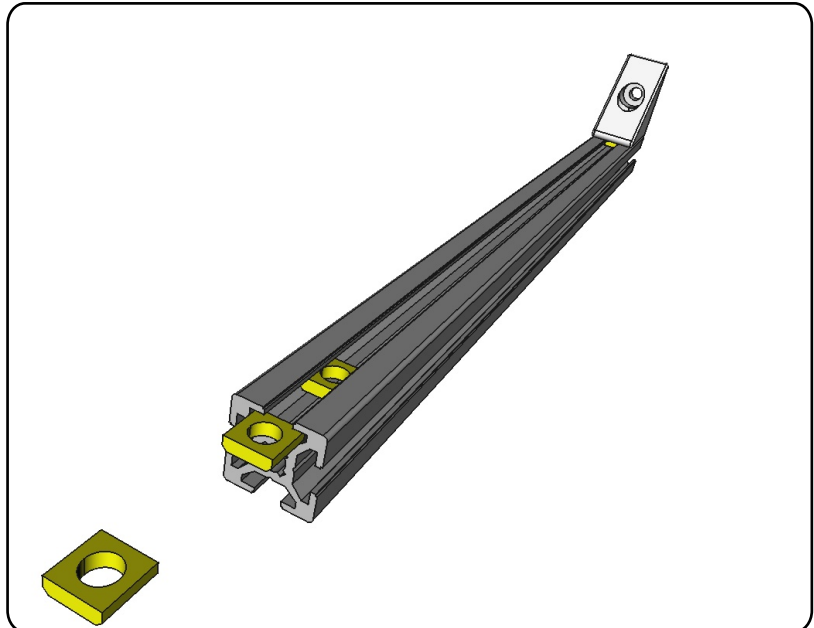
Step 6: Insert one M6nutplate at one end of a Tslot32-beam and use it to connect one of the RAconnectors to that beam with a M6x12 screw.



The upright pillars

Step 7: Insert three M6nutplates more at the other end of the beam and use one of it to connect another RAconnector there.

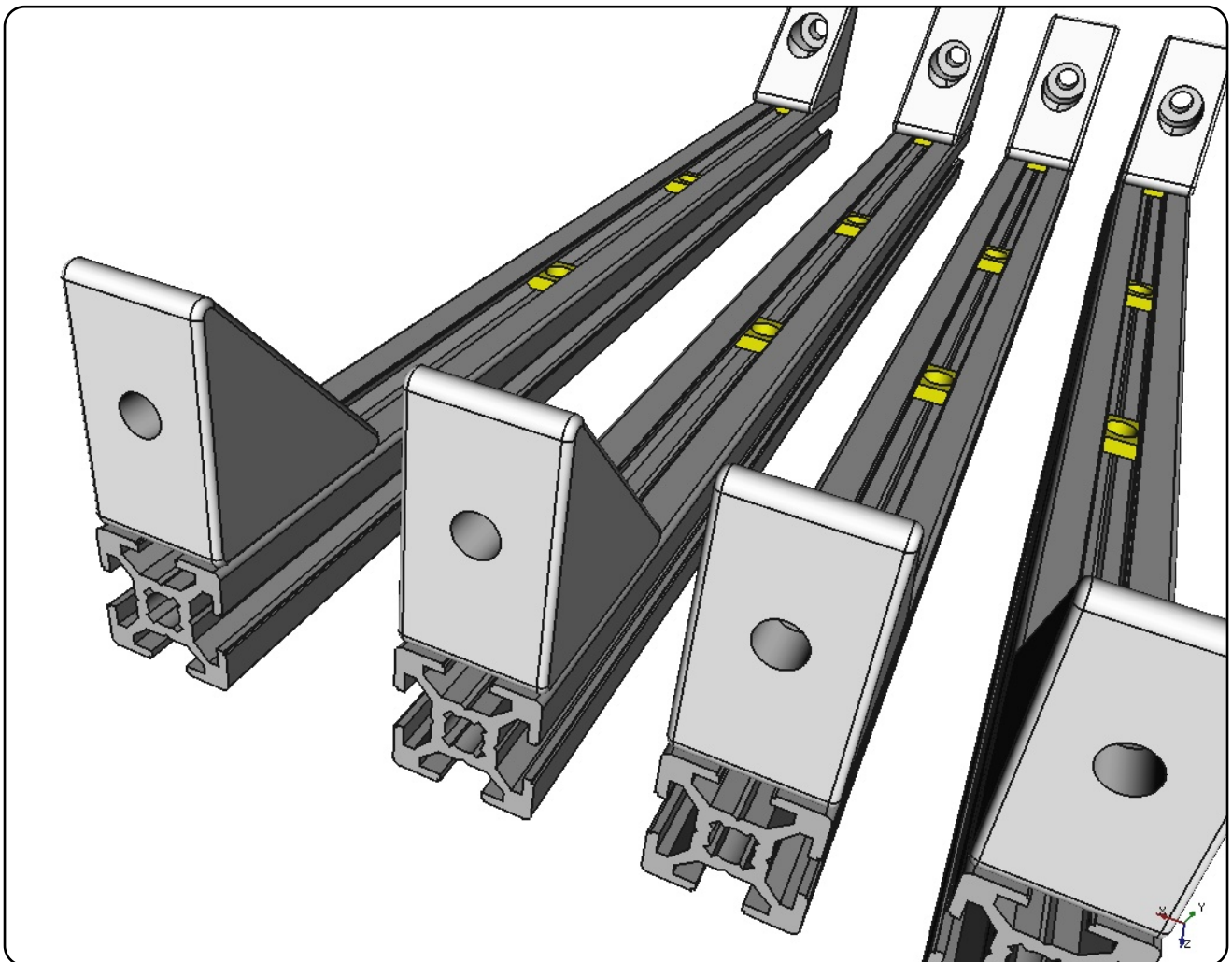
Note: The two intermediate M6nutplates are intended for mounting both inner Front-plates vertically on the front- and the back-plane of the frame. If you prefer a configuration like shown within Step 24, then you can leave out the two intermediate M6nutplates in the back-plane pillars.



The upright pillars

Step 8: Produce three more of these prepared beams.

Now you are done with the upright pillars !

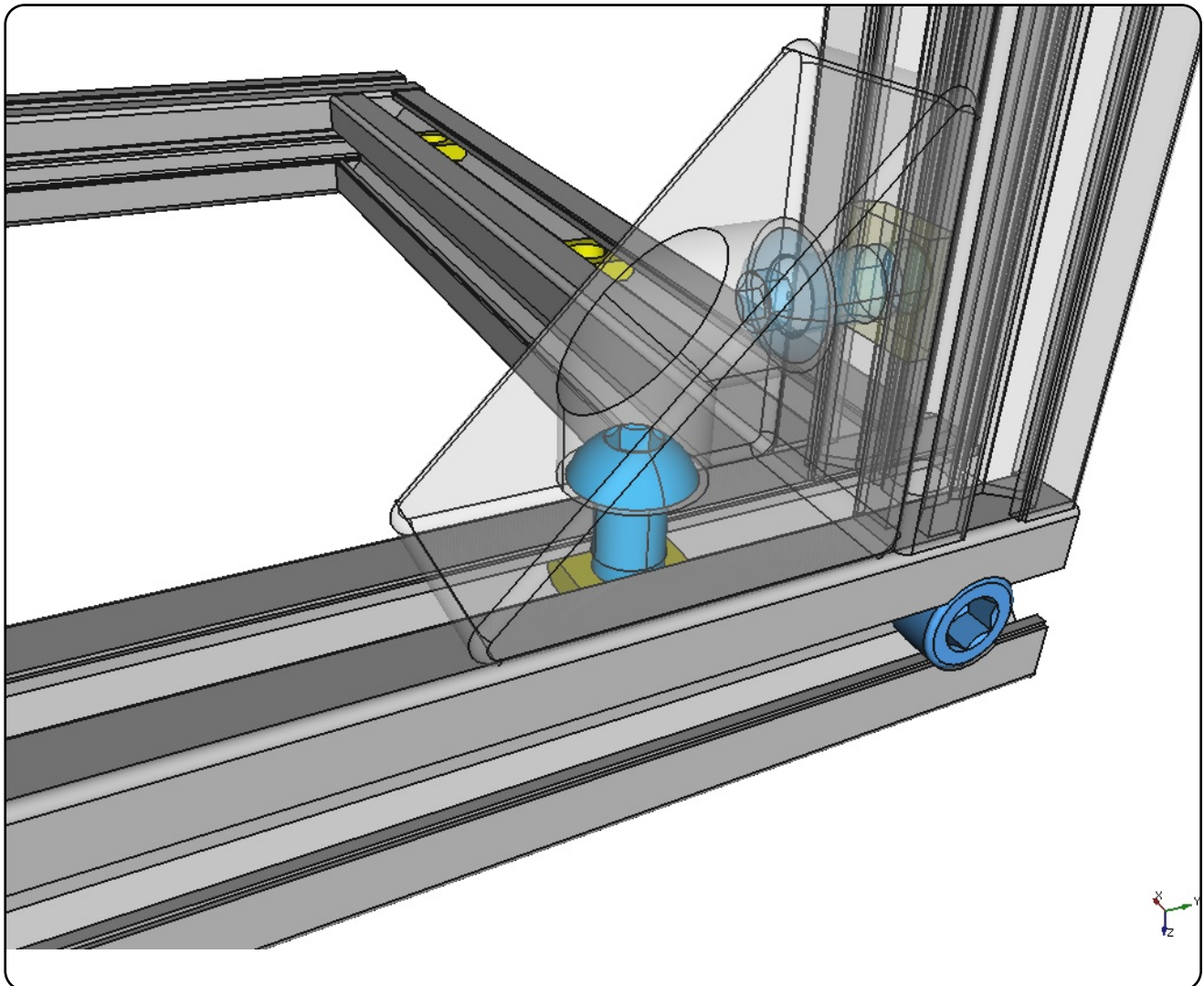
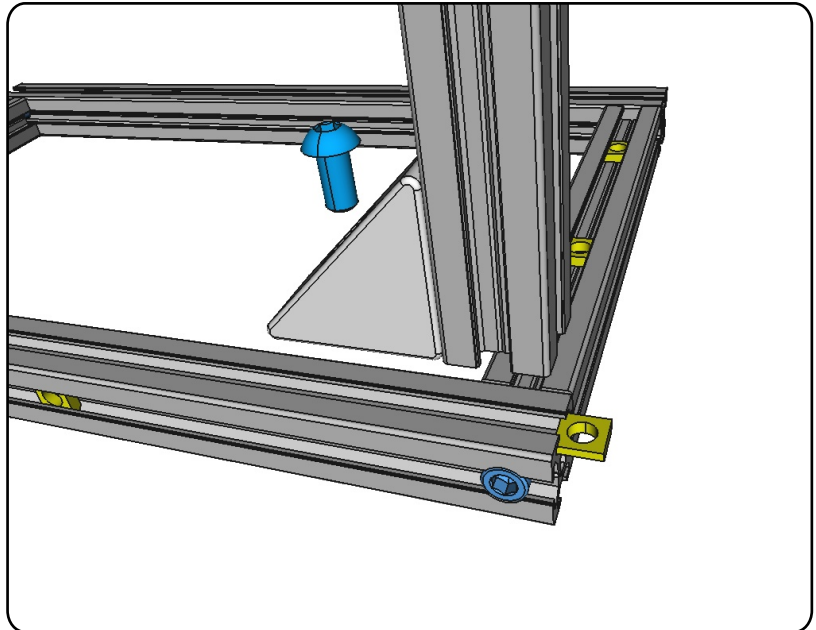


Connecting lower frame and pillars

Needed parts:

- 1 x lower frame subassembly
- 4 x pillar-subassembly
- 4 x M6nutplate
- 4 x M6x12

Step 9: Insert a M6nutplate into the upper slot of the lower frame subassembly and connect one pillar subassembly to it with a M6x12 screw.



Connecting lower frame and pillars

Step 10: Repeat that with the remaining three pillars and connect each of them to the other corners of the lower frame.

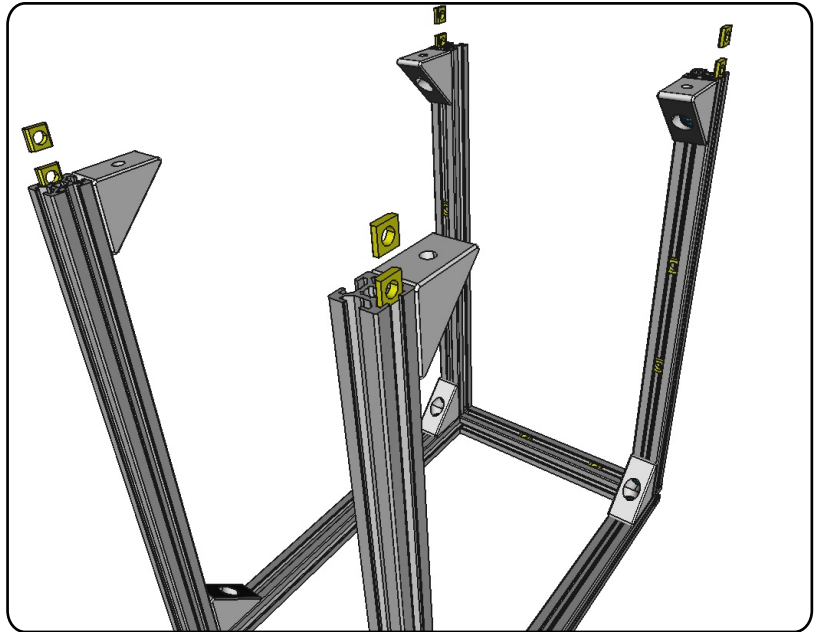


Insert Nutplates for sidecover

Needed parts:

8 x M6nutplates

Step 11: Insert two M6nutplates in each of the outer slots of the large sides.

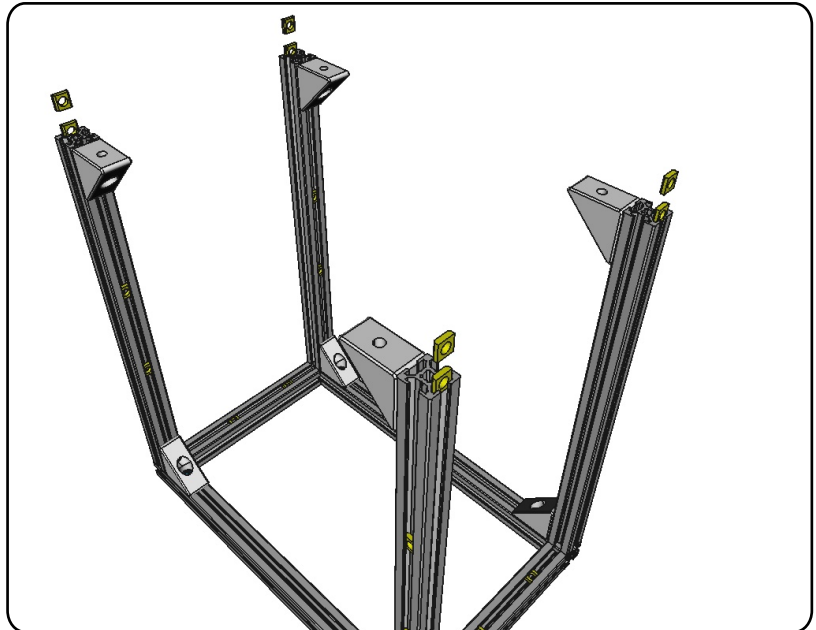


Insert Nutplates for front- and back-cover

Needed parts:

8 x M6nutplates

Step 12: Insert two M6nutplates in each of the outer slots of the front- and back- sides.

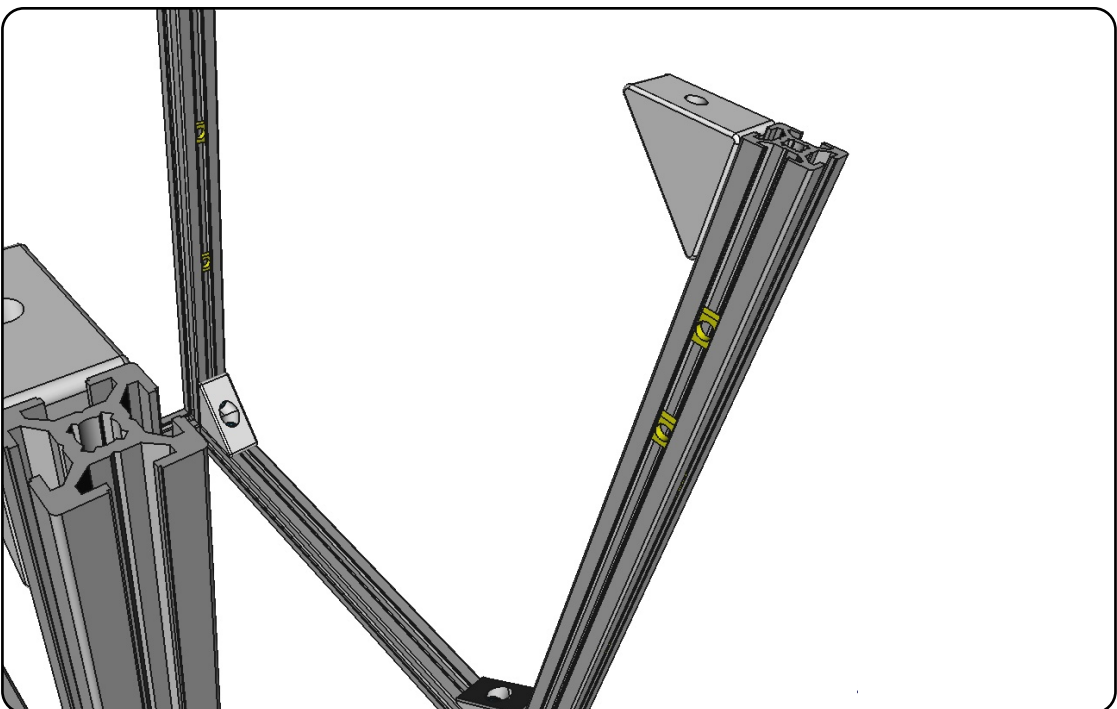
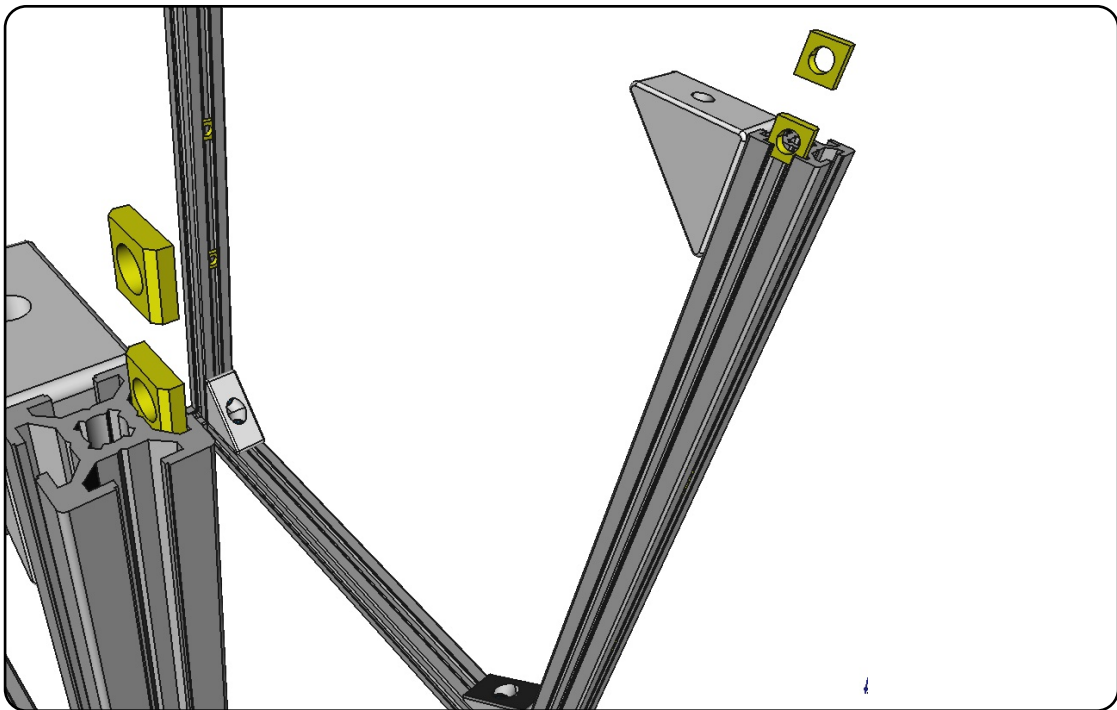


Insert Nutplates for Interface-Mountplate

Needed parts:

4 x M6nutplates

Step 13: Insert two M6nutplates in each of the inner slots of one small side. This defines, which will later become the front-side



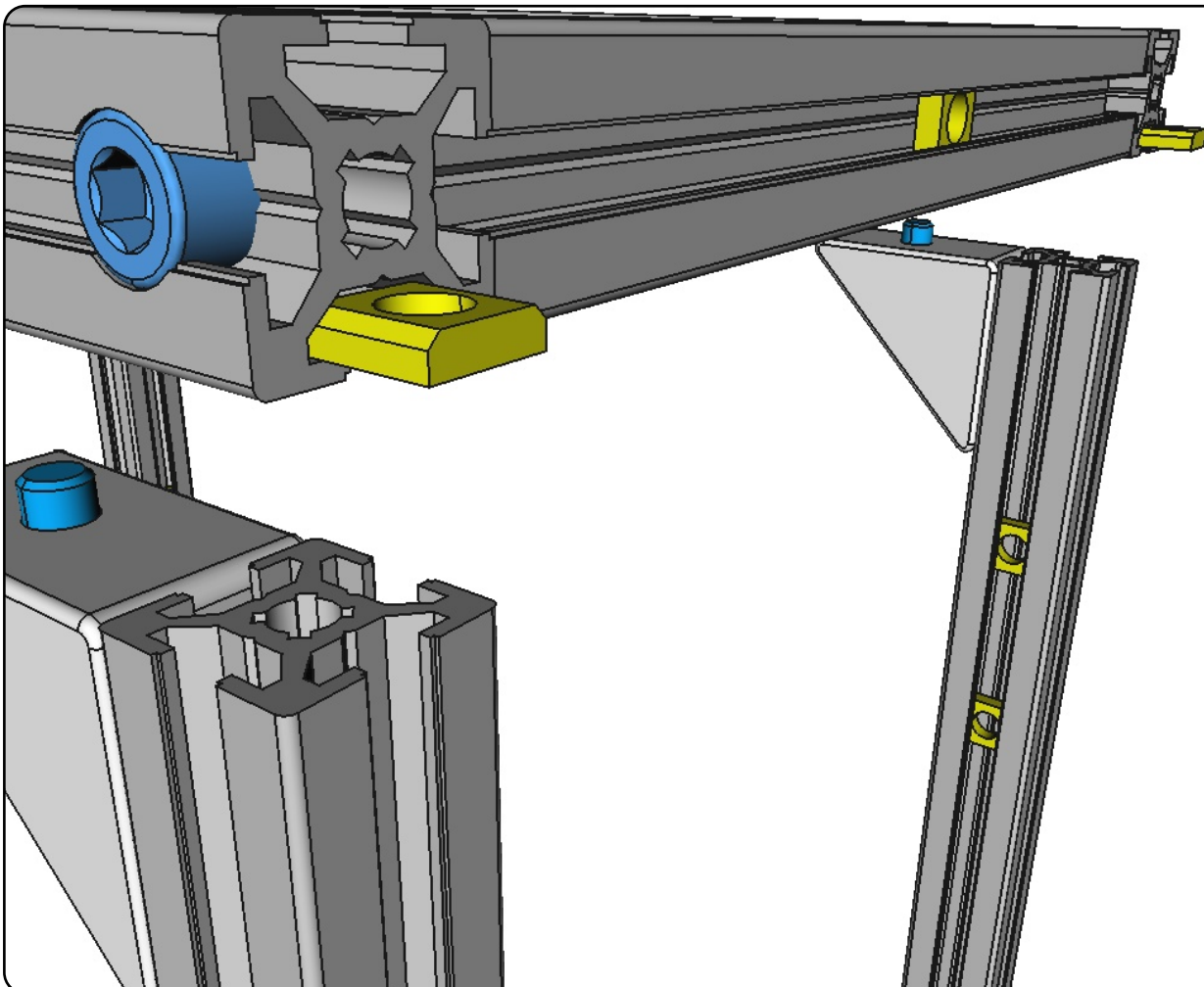
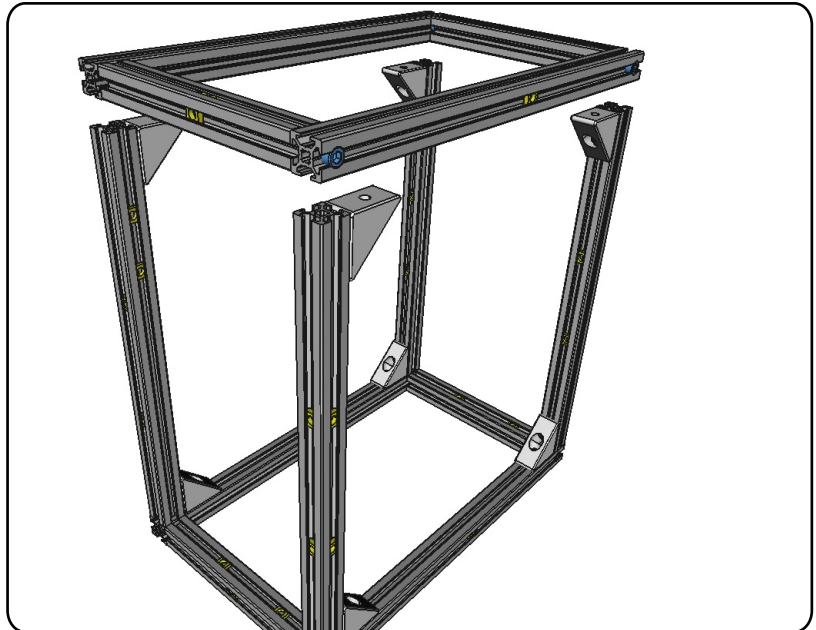
Connect the upper frame

Needed parts:

- 1 x Upper frame subassembly
- 4 x M6nutplates
- 4 x M6x12

Step 14: Place the upper frame on top and insert the four M6nutplates into the lower slot of each corner. Then make the connection to the RAconnectors of the pillars with the M6x12 screws.

You are done now with the raw core-frame !

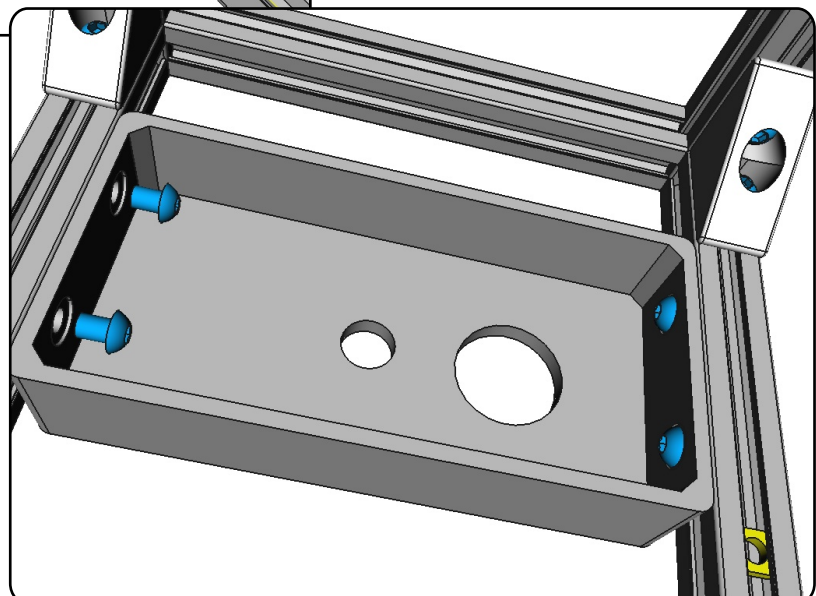
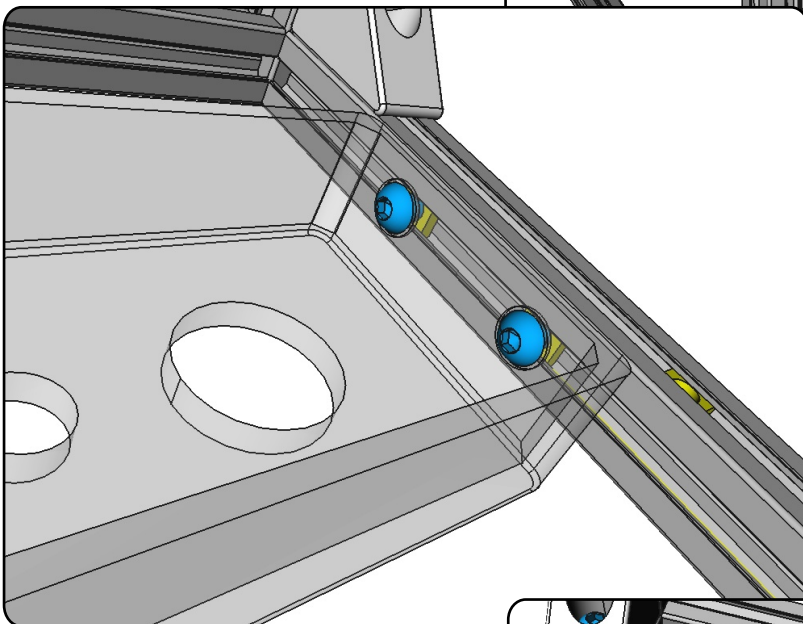
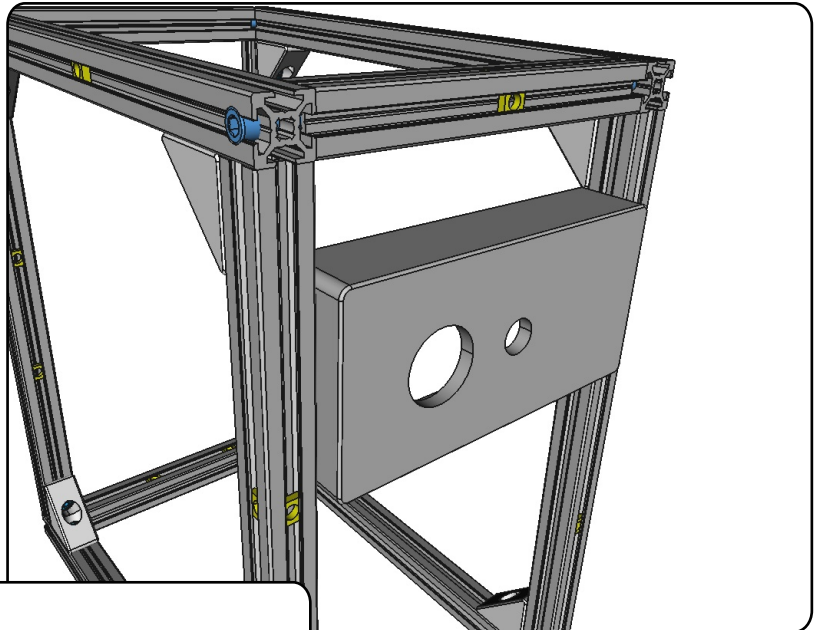


Connect the Interface-Mountplate

Needed parts:

1 x Interface-Mountplate
4 x M6x8

Step 15: Place the Interface-Mountplate between the beams of the front-side and connect it with the four M6x8 screws.

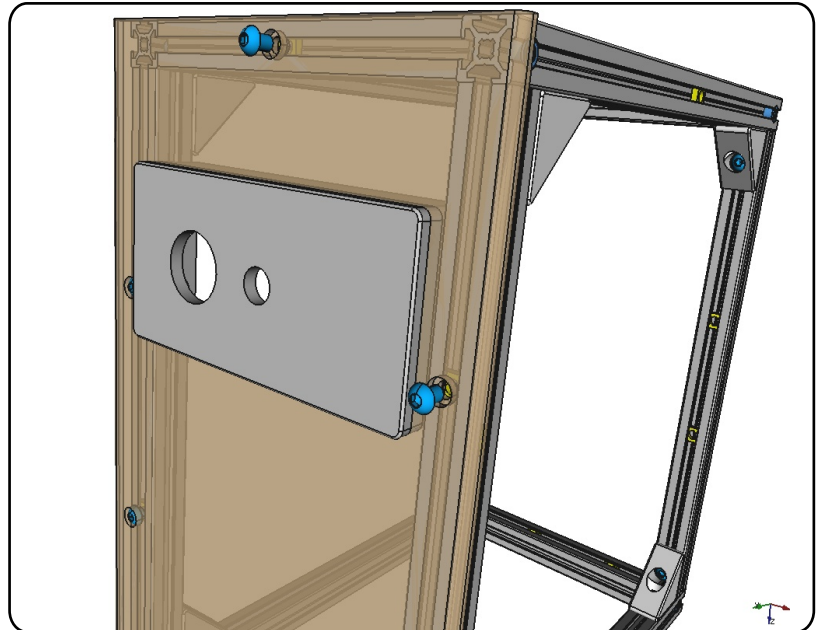


Mount the Front- and Back-Cover

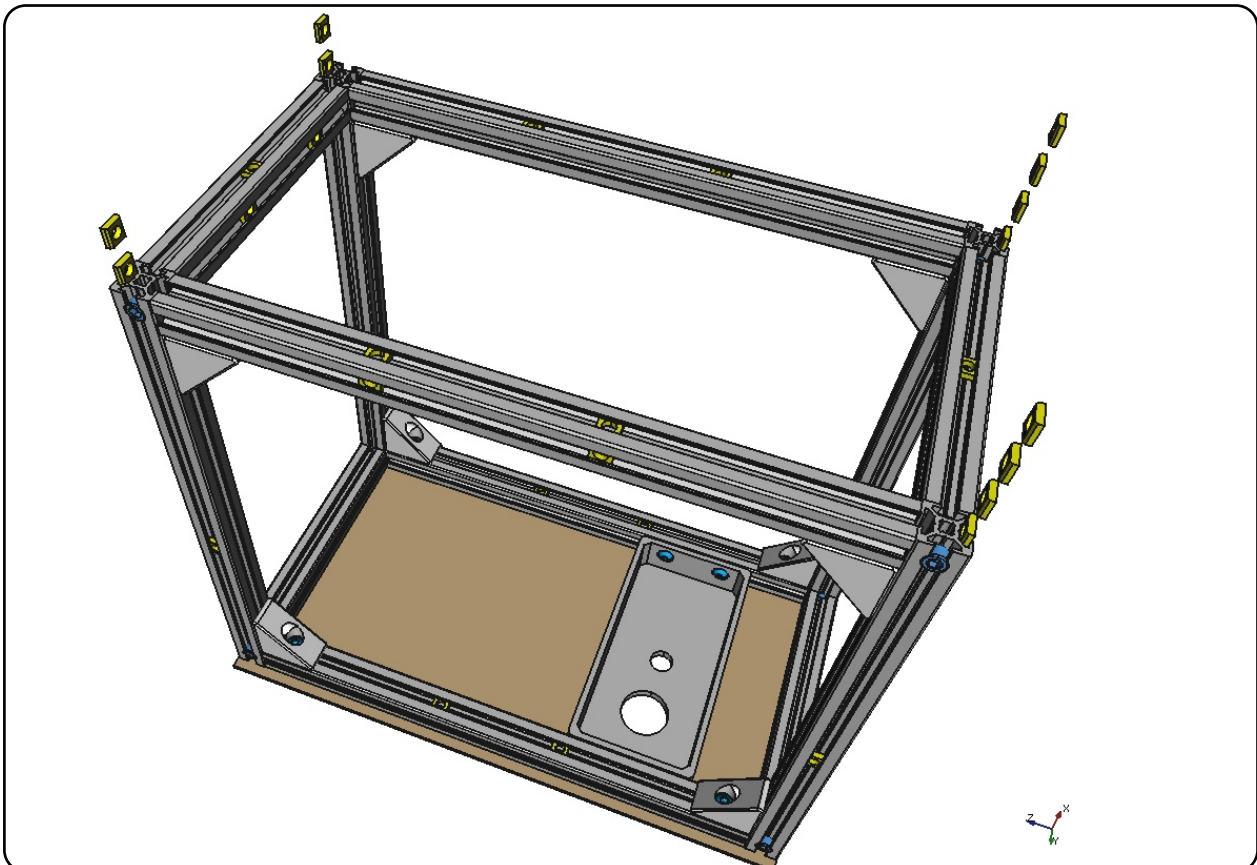
Needed parts:

- 1 x FrontbackNG2c-ifmount
- 1 x FrontbackNG2b
- 12 x M6x8
- 12 x M6nutplate

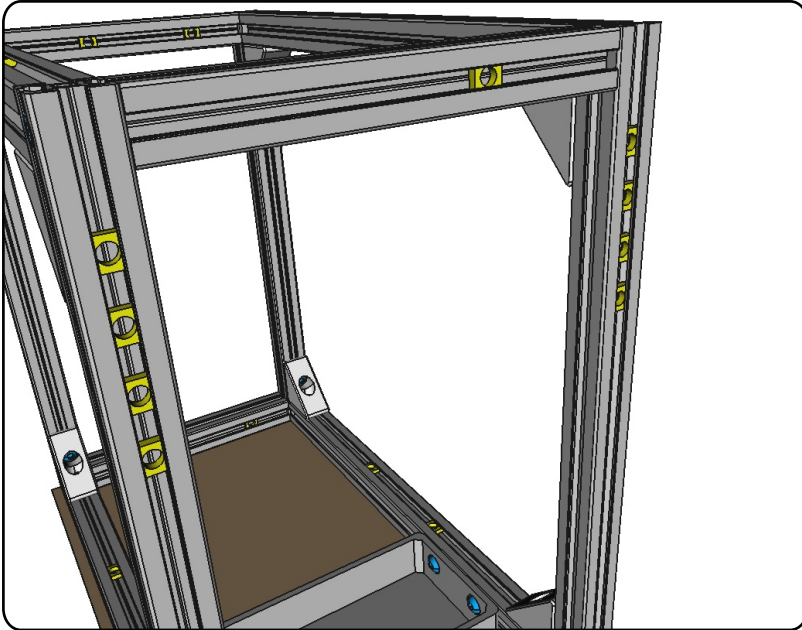
Step 16: Place the Frontcover (with the cutout for the Interface-Mountplate) on the fronts-side and connect it with six M6x8 screws.



Step 17: Turn it onto the face and insert into each of the outer/lower slots of the lower frame four M6nutplates and into each of the outer/upper slots of the upper frame only two M6nutplates.

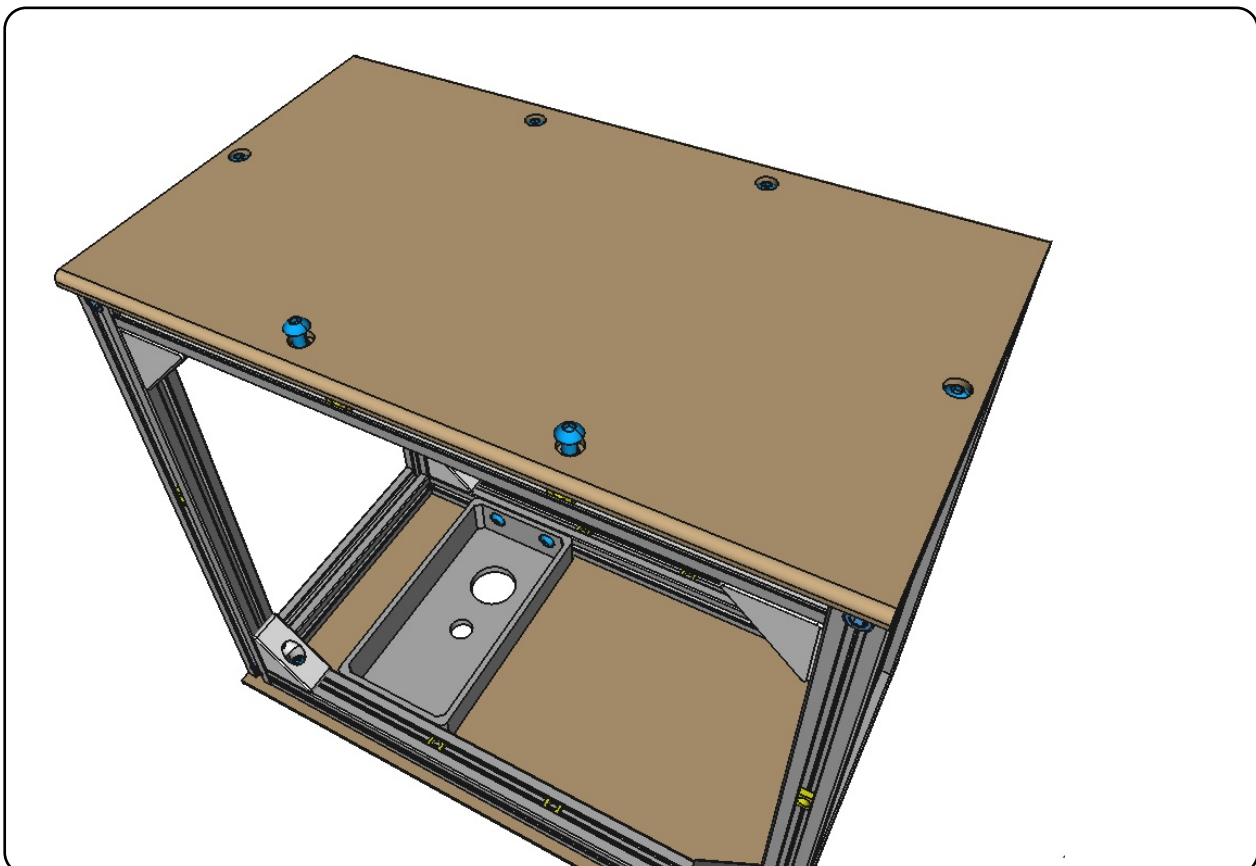


Mount the Front- and Back-Cover



These M6nutplates become enclosed into the slots, when adding the Back-Cover.

Step 18: Mount the Back-Cover with six M6x8 screws.

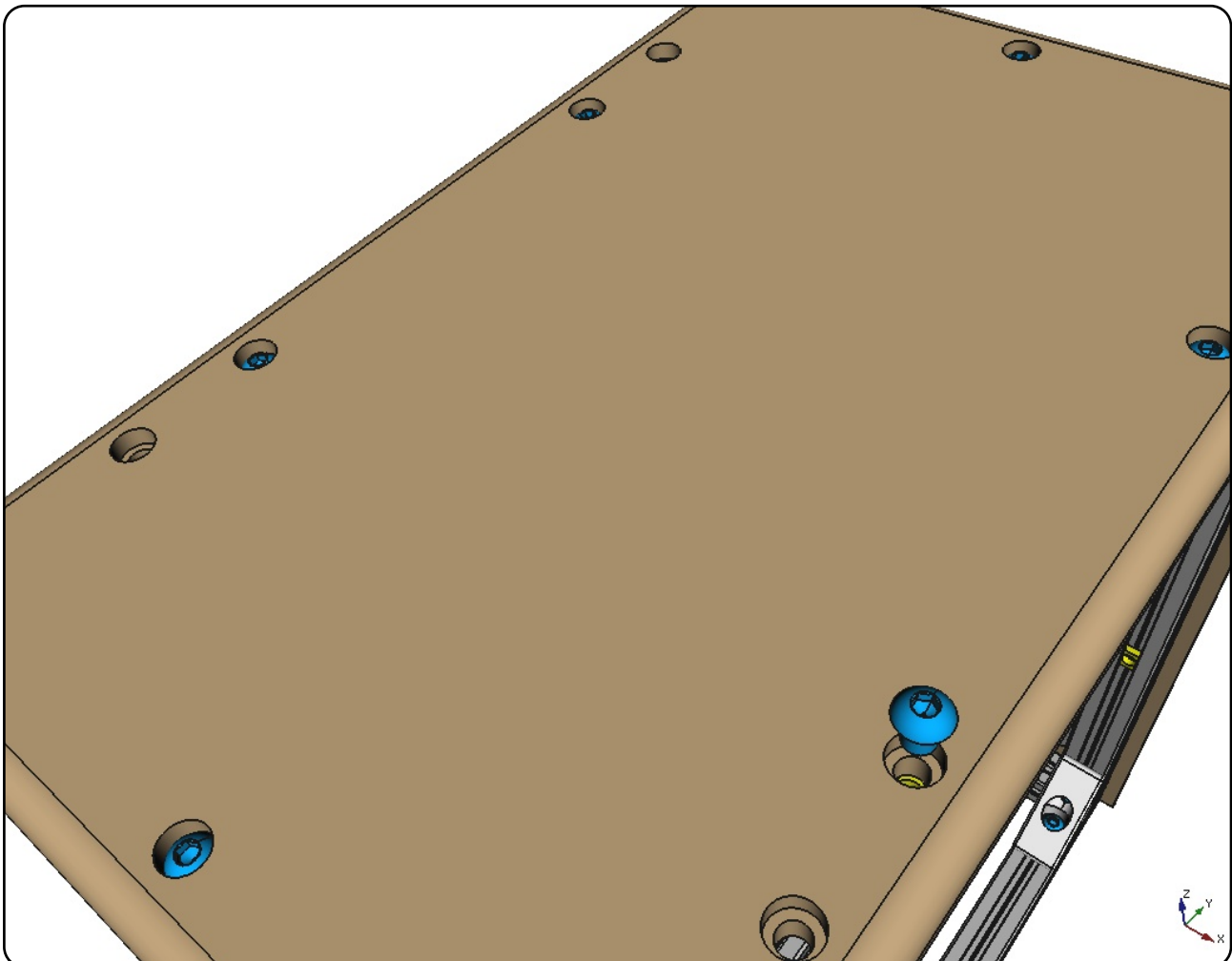
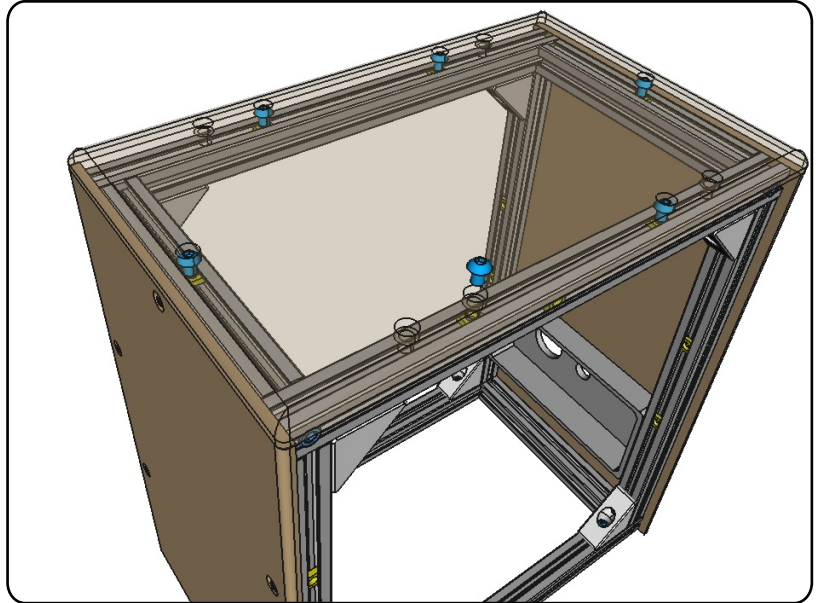


Mount the Bottom-Cover

Needed Parts:

1 x TopbottomNG2b
6 x M6x12

Step 19: Mount the Bottom-Cover with six M6x12 screws. Note that 4 holes in the coverplate remain unused. This is, because this type of coverplate can also be used as Top-Cover, where the additional holes are needed for the handles. But for the Bottom six screw-junctions are sufficient.

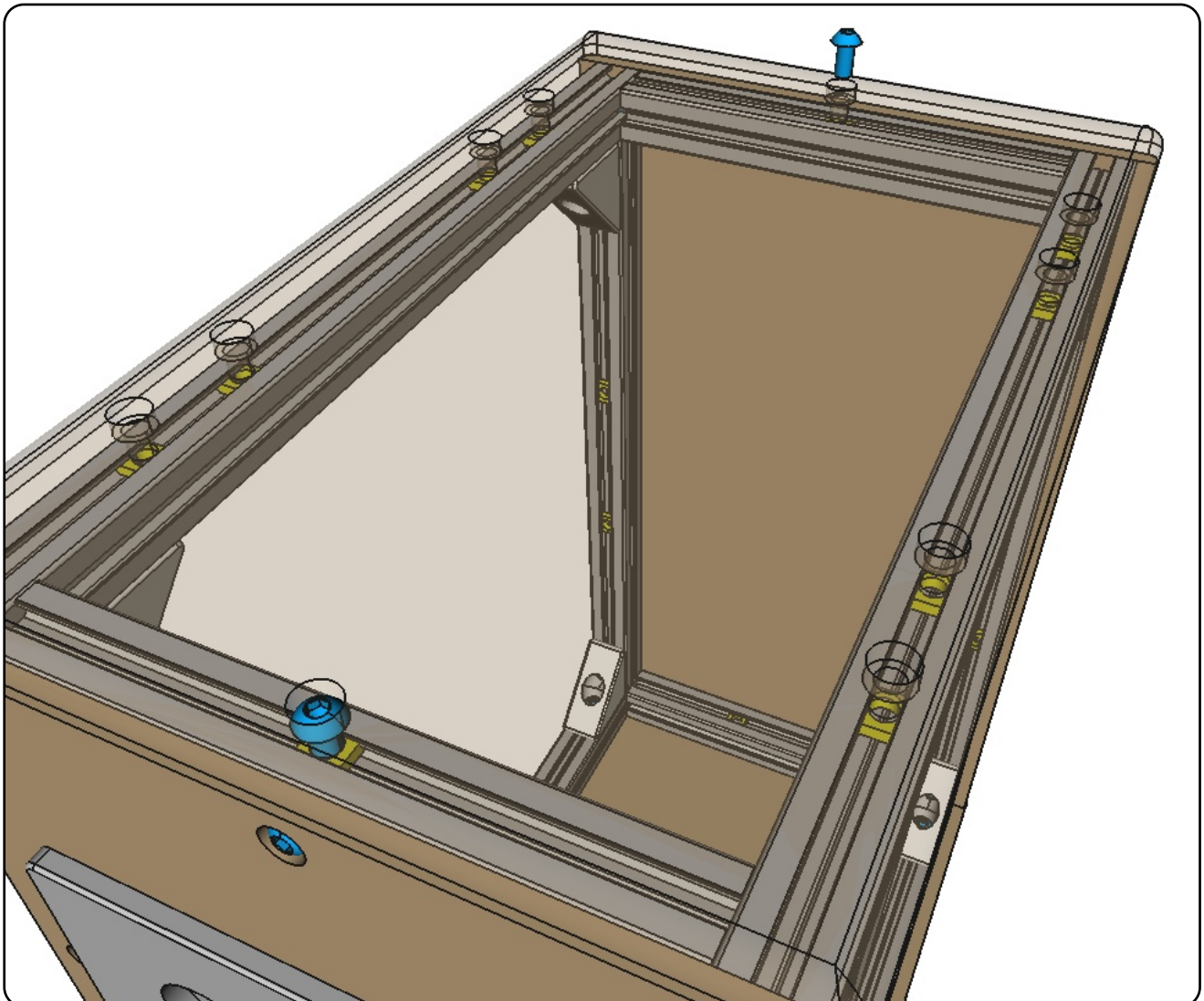


Mount the Top-Cover with handles

Needed Parts:

- 1 x TopbottomNG2b
- 2 x Boxhandle2
- 2 x M6x12
- 8 x M6x25cyl

Step 20: Mount the Top-Cover with two M6x12 screws on the short sides.



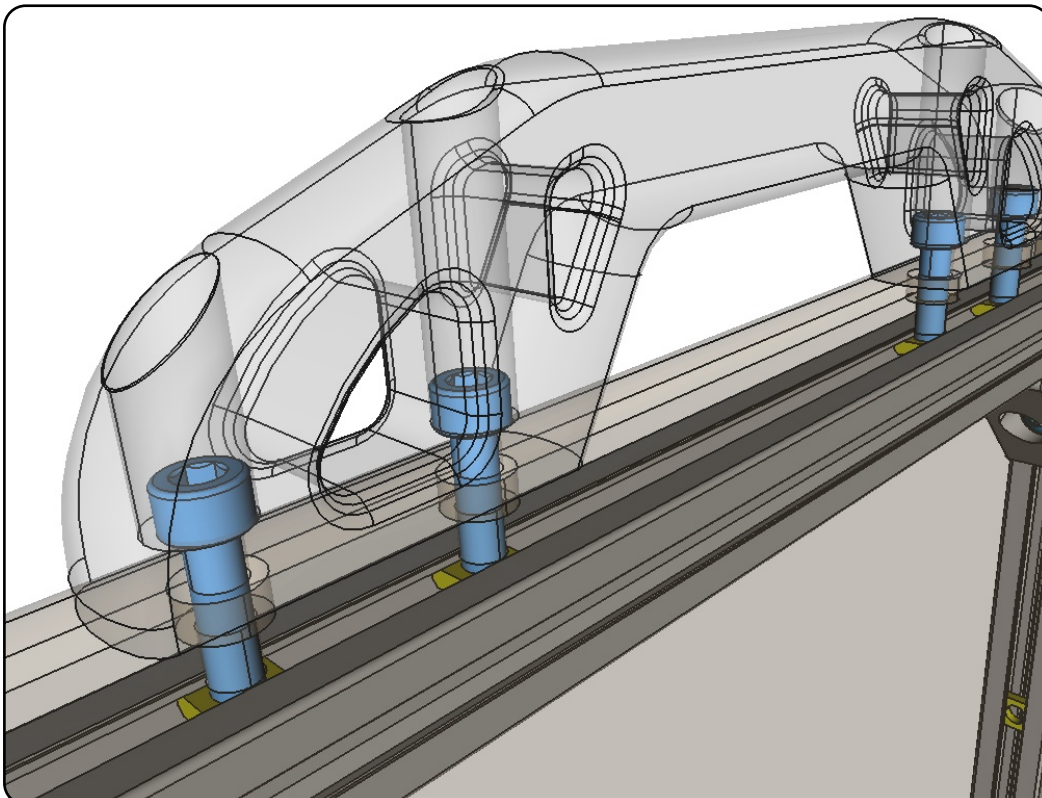
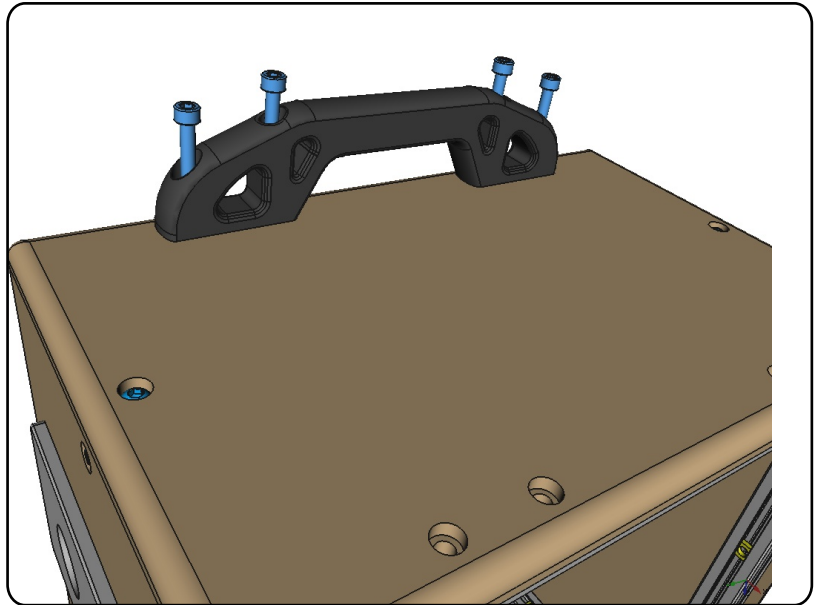
Mount the Top-Cover with handles

Step 21: Then place one handle onto it and connect it with the M6x25cyl screw directly to the frame. It can be somewhat tricky to place the nuts exactly under the screw, therefore we recommend the following procedure:

1. Tilt the whole box to the left side, so that the M6nutplates within the slot will slide into the left corner.
2. Hold the Allen-key (as a kind of stopper) into the outermost right hole and then tilt the box to the right, so that the screws slide to the right side and the first needed screw is stopped immediately by the Allen-key (and therefore positioned next/close to it).
3. Carefully tilt the box back into horizontal

position and pull off the allen-key.

Give it some very weak slaps from the left side, which hopefully positions the nut directly under the hole. Use the Allen-key to center it a bit and then screw the M6x25cyl in. Repeat that with the other M6nutplates and holes. Now mount the second handle.



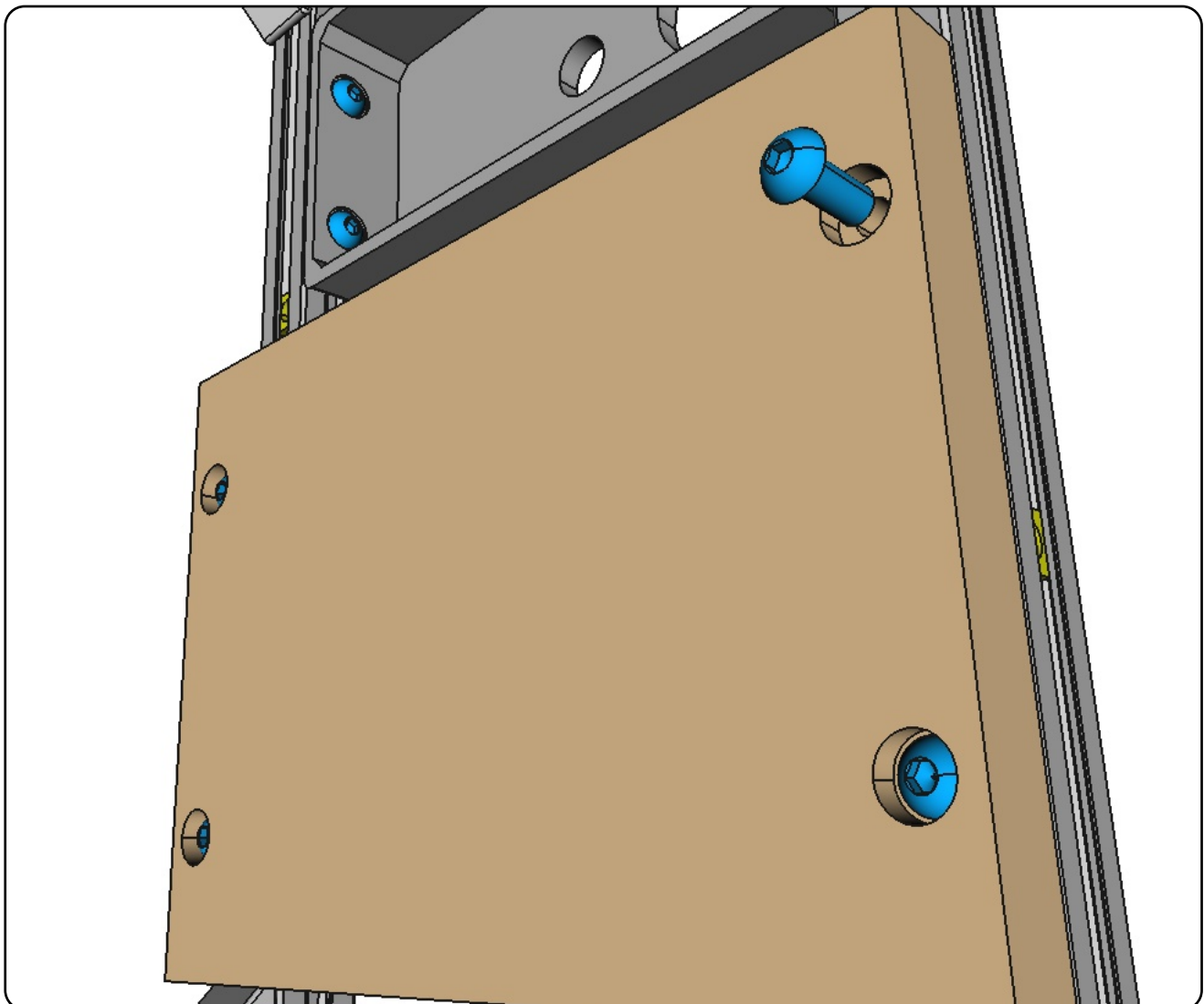
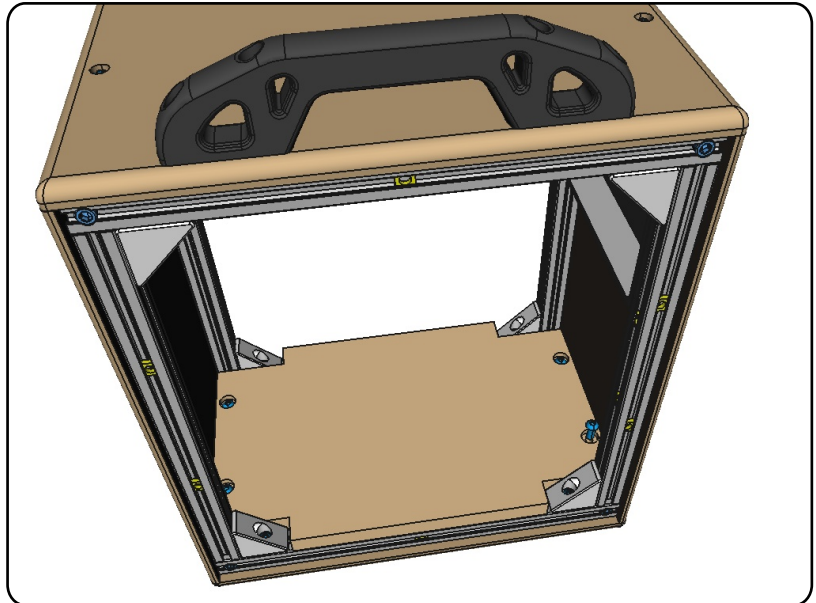
Mount the Inner Plates

Needed Parts:

1 x Bottom_plate
2 x Front_plate
2 x Angle8
12 x M6x16
16 x 3.5x16ws

Step 22: Mount the Bottom_plate with four M6x16 screws on the short sides.

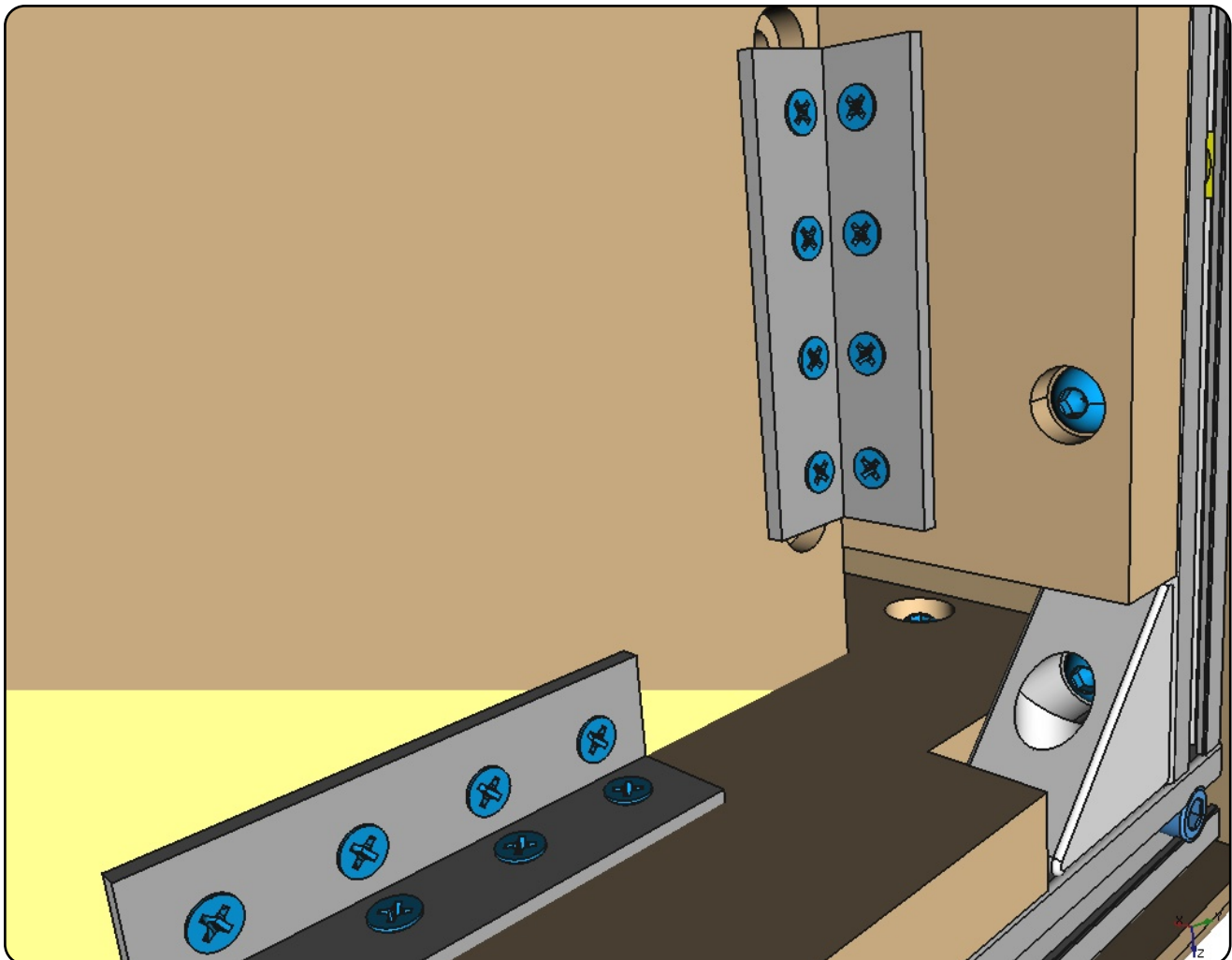
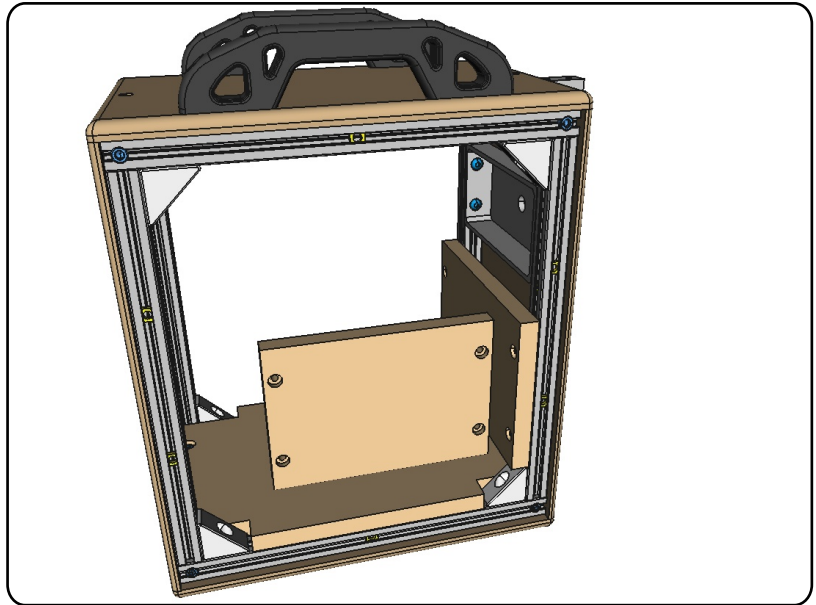
Step 23: Mount the Front_plate with four M6x16 screws on the vertical pillars of the front side.



Mount the Inner Plates

Step 24: Mount the second Front_plate vertically on the bottom and the other Front_plate, by fixing it with the two Angle8 and the sixteen 3.5x16ws woodscrews.

Note, that there are no predrilled holes for the (selfcutting) woodscrews, which is intended to give you the flexibility to adopt the position to individual project needs. It is also possible to mount the second Front_plate onto the back-plane (if not wanted, insert at step 7 two less nuts into the two pillars for the back-plane).



Mount the Side Covers

Needed parts:

2 x SideCoverNG2
12 x M6x8

Step 25: Mount the (acrylic) SideCoverNG2 to the large sides with M6x8 screws.

Congratulations, you are done now with the whole Boxframe !

