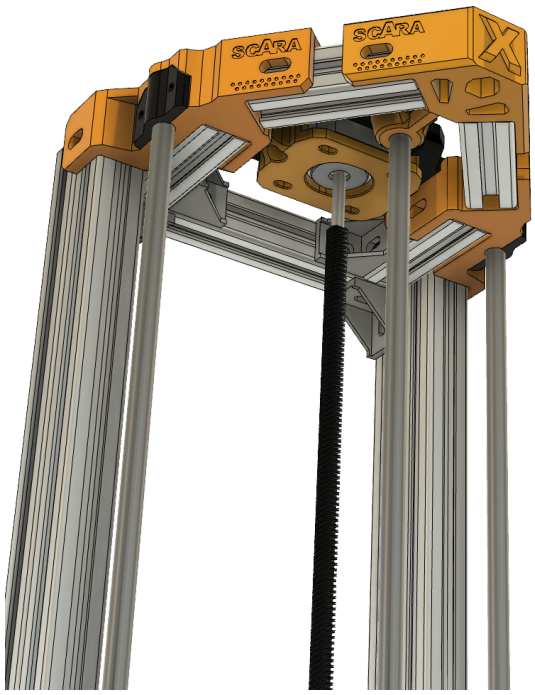


X-SCARA FRAME

Bill of materials

Each element marked with (Z) can be extended by a given offset if you intend to make the SCARA higher than originally designed.

Aluminum extrusions

- 2 x 20x40 300mm aluminum profile (Z)
- 2 x 20x20 130mm aluminum profile
- 4 x 20x20 60mm aluminum profile

Brackets

- 8 x 20x20 Corner Cast bracket

Rods and lead screw

- 3 x 8mm 300mm rods (Z)
- 1 x Tr8/x 250 mm lead screw (Z) (2 mm pitch preferred)

Screws and nuts

- 50 x Button Head M5 x 10mm Screws
- 50 x M5 Drop In Hammer T-Nuts for 2020 (OR 50 x M5 square Nuts for 2020)
- 15 x socket Head Screw M3x10
- 10 x socket Head Screw M3x12
- 20 x M3 nuts (2 mm thick)
- 2 x T-Nuts (corresponding to your chosen lead screw)

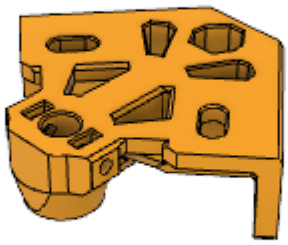
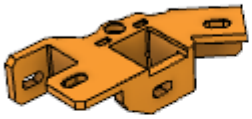
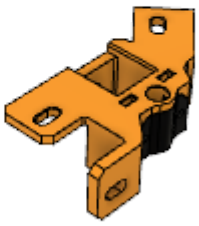
Others

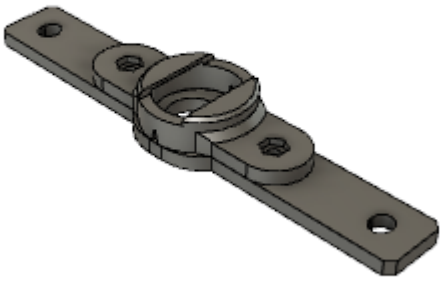
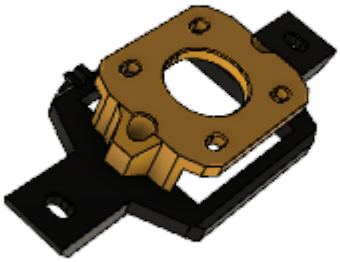
- 1 x 608 bearing (OD/ID/T 22x8x7)
- 1 x NEMA 17 motor
- 1 x Flexible Shaft Coupling 8x5 mm

CAD

For a complete preview of the frame model check this Autodesk Fusion 360 shared link.

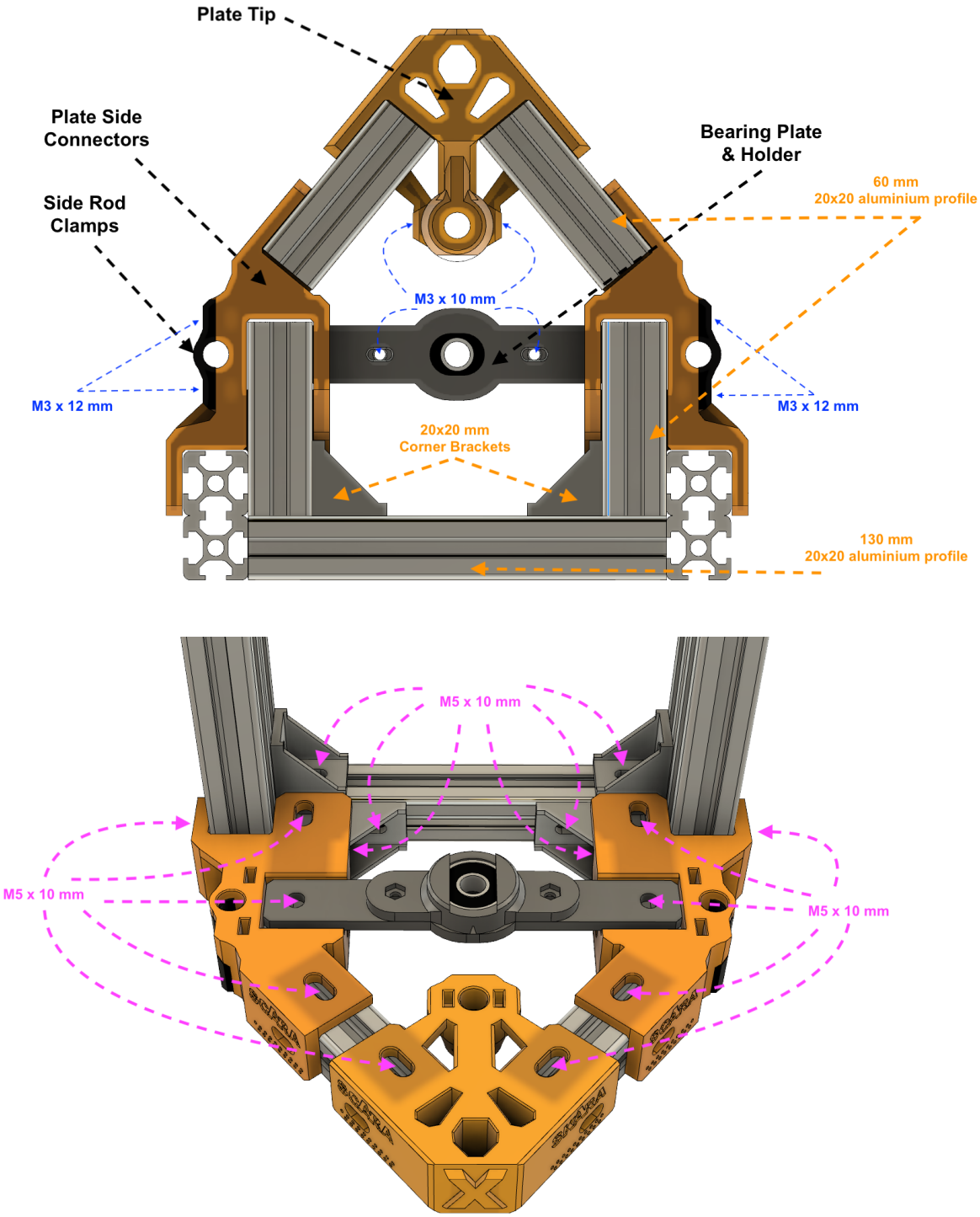
Printed parts

Part	Count	Picture
Frame_Plate_TipConnector	2	
Frame_Plate_SideConnector	4	
Frame_Plate_Side_RodClamp	4	
Frame_Z_BearingPlate	1	

Part	Count	Picture
Frame_Z_BearingHolder	1	
Frame_Z_MotorPlate	1	
Frame_Z_MotorConnector	1	

Assembly

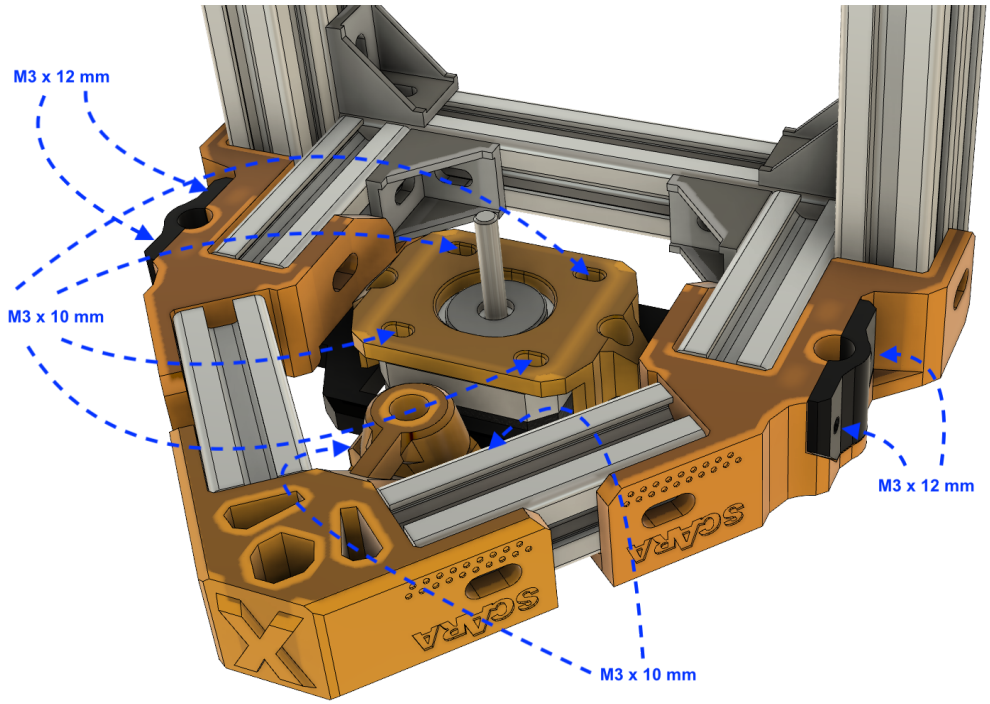
Step 1 - Assemble the bottom plate

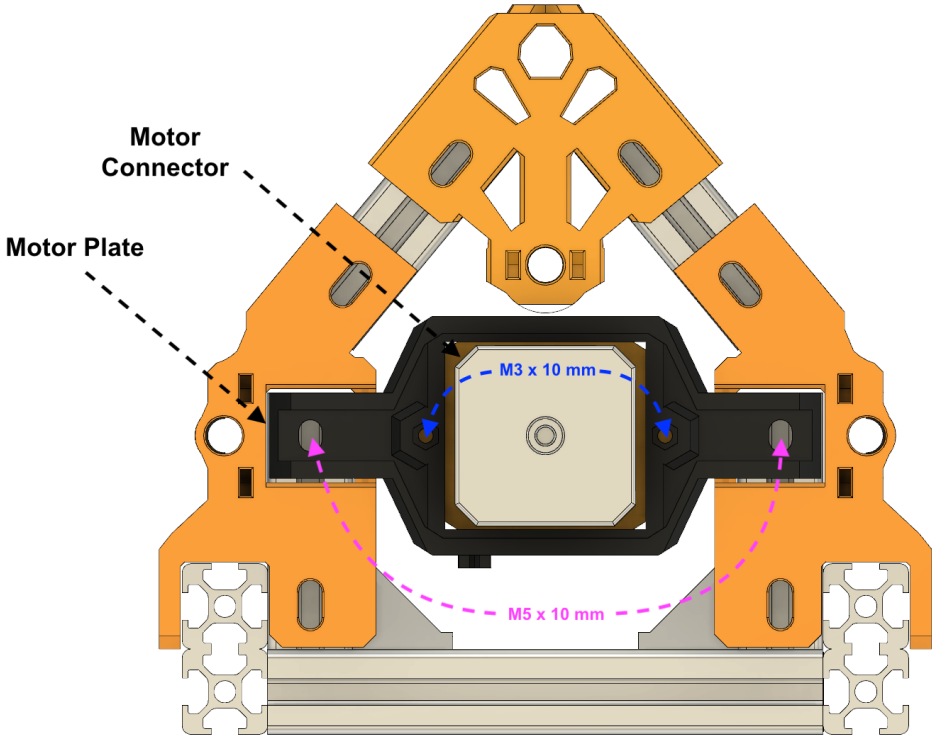


Make sure when you connect these parts that the aluminum profiles have a corect 90° angle, before tightening the screws.

Don't tighten the screws too hard to allow adjustments at the end of the assembly. This is especially valid for the Z bearing plate, which requires adjustment of the Z lead screw after the arm is installed.

Step 2 - Assemble top plate

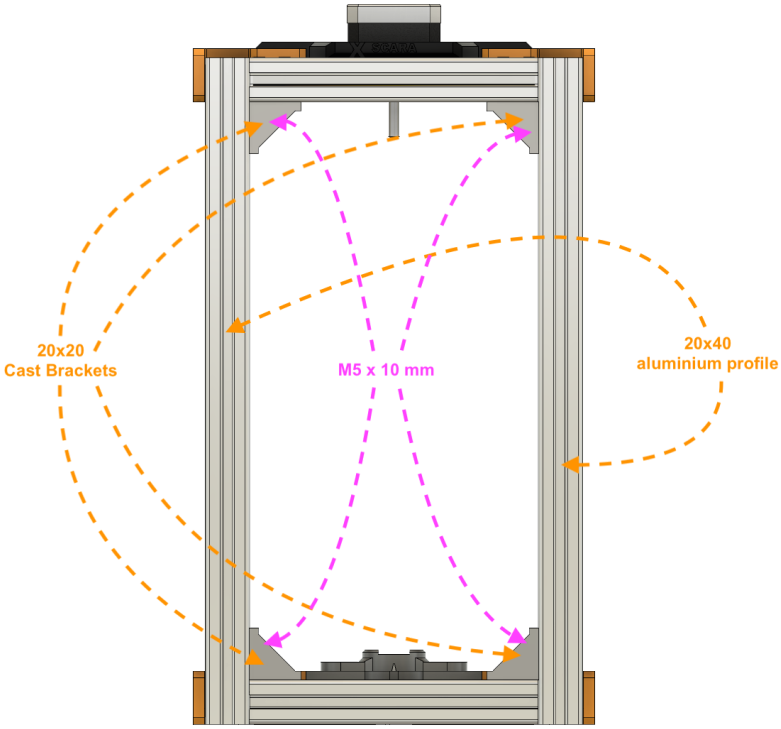




The top plate is very much similar with the bottom plate, with the exception of the Z-Motor mount.

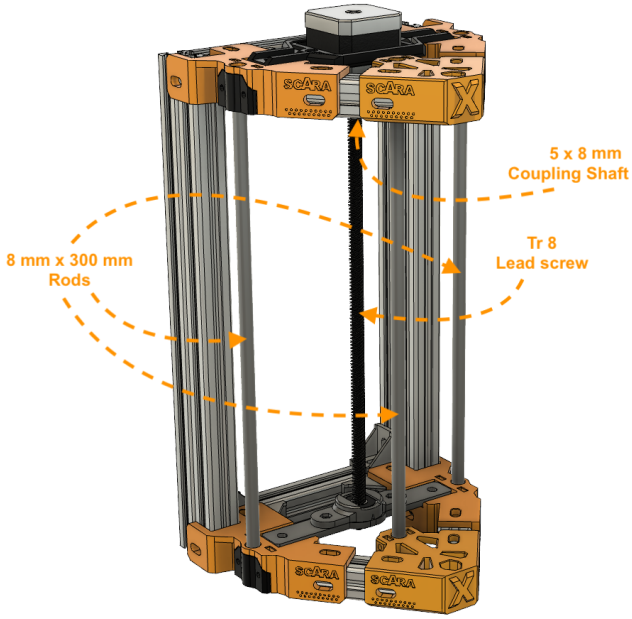
Don't tighten the screws too hard for the motor mount. Like the bearing plate, it will require adjustments after arm installation.

Step 3 - Assemble the plates on the back frame



This is somewhat straight-forward. Make sure the plates are parallel after assembly.

Step 4 - Assemble the rods and lead screw (temporarly)



This parts will get their final assembly after the arm is fully assembled and installed. Place them just to check for missalignments.

Done

Nicely done. Now assemble the arm if you haven't done so by now.