ASSEMBLY INSTRUCTIONS

LOONY CLAW: v1.0

Designed by Jameson   2022 The Loony Squad

BILL OF MATERIALS

PART NAME	SKU	QUANTITY	CHECK
block mount		1	
idle arm		1	
servo arm		1	
top plate		1	
servo mount		1	
M4x10	2802-0004-0010	2	
M4x12	2802-0004-0012	11	
M4x18	2802-0004-0018	4	
M4x30	2802-0004-0030	3	
M4 Nut	2812-0004-0007	18	
Low Side U Channel	1121-0001-0048	1	
4mm ID Spacer, 24mm	1502-0006-0240	1	
25 Tooth Spline Servo Hub	1908-0025-0032	1	
Torque Servo	2000-0025-0002	1	
L-Beam, 1 Hole	1103-0001-0008	2	
6mm Bearing	1611-0514-0006	2	
8mm Hex Bearing	1611-0514-4008	1	
Surgical tube/hot glue/ grippy material			

NOTES:

- This claw can be built using an Axon Mini or Mini+ servo using the "Axon Mini servo mount" part instead of the "servo mount." The STL can be found in the GitHub repository for this design.

- The Low Side U Channel can be replaced with any length low side U channel, U channel, or goBILDA plate. The only requirement for mounting this claw is a flat surface with a 32x32 hole pattern.

- You will also need some kind of grippy material to line the insides of the claws. This design has been tested with surgical tube and hot glue, both of which work well for holding the cones.

- For questions or concerns, reach out to members of the Loony Squad on discord.

- Tables on each page will tell you how many fasteners/small items you need.

PRINTING PARAMETERS (PLA)

Here are the as-tested printing parameters for PLA. These were tested on a stock Ender 3. With MatterHackers MH Build PLA

NOTE: Your printer or filament may vary. This is intended only as a starting point.

PART NAME	INFILL (GYROID)	WALLS	TOP/BOTTOM
0.4mm nozzle **0.2mm layers**			
block mount	30	2	6/4
idle arm	50	6	4
servo arm	50	6	4
top plate	100	2	4
servo mount	100	2	4
viper adapter	100	4	6
0.6mm nozzle **0.3mm layers**			
block mount	20	2	3
idle arm	50	4	6/4
servo arm	50	4	6/4
top plate	100	2	4
servo mount	100	2	4
viper adapter	100	4	4

These settings are designed to create the strongest parts possible. They are not ordered towards creating the lightest parts possible. With some adjustment, the weight of this claw may be reduced by a few dozen grams at the expense of some strength.

NOTE: With the goal of creating the most resilient claw possible, we printed the claws in Overture TPU with a 0.6mm nozzle at 0.3mm layers with 2 walls and 15% infill. These claws were flexible enough to withstand a full speed collision with the field wall, but were too soft to grip the cone effectively. However, this idea could work to create more resilient claws with more tuning.
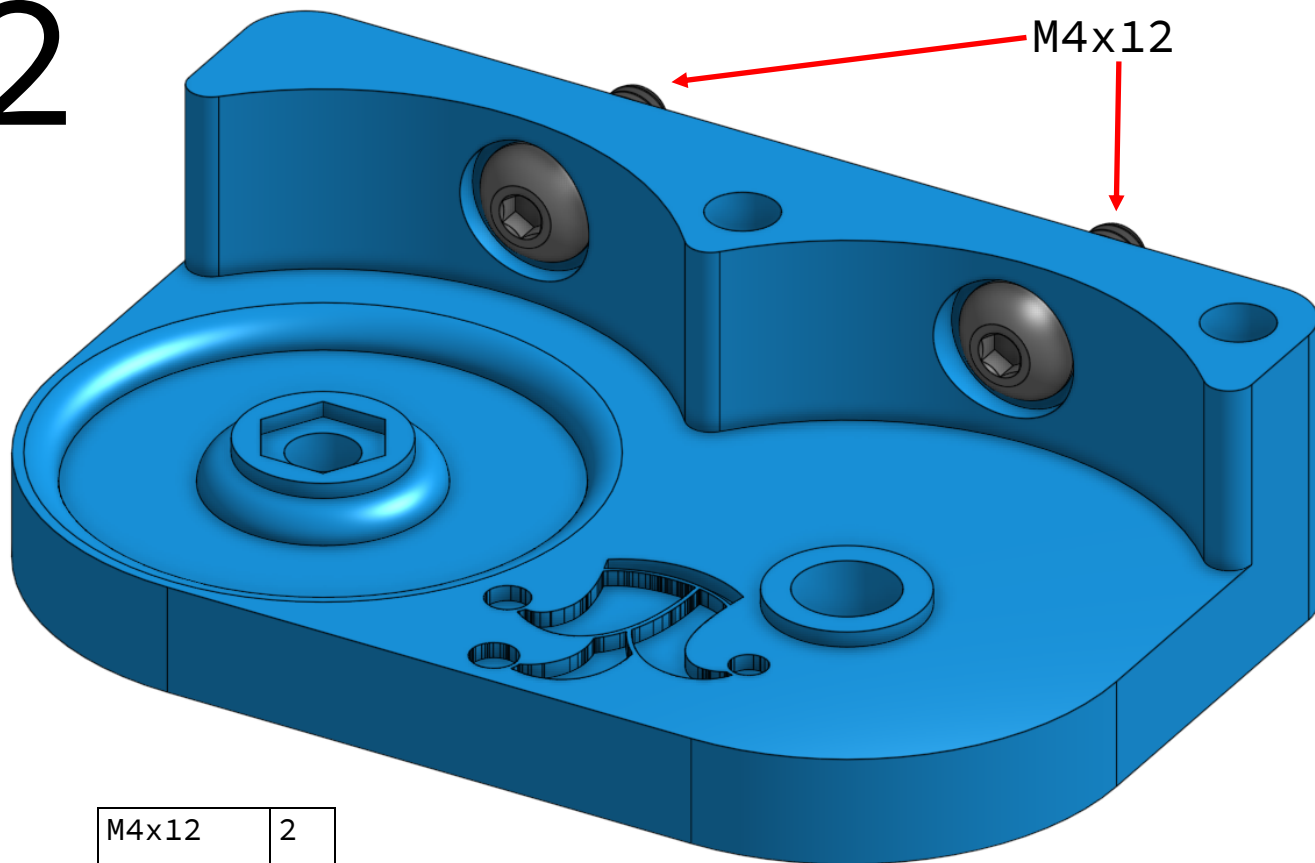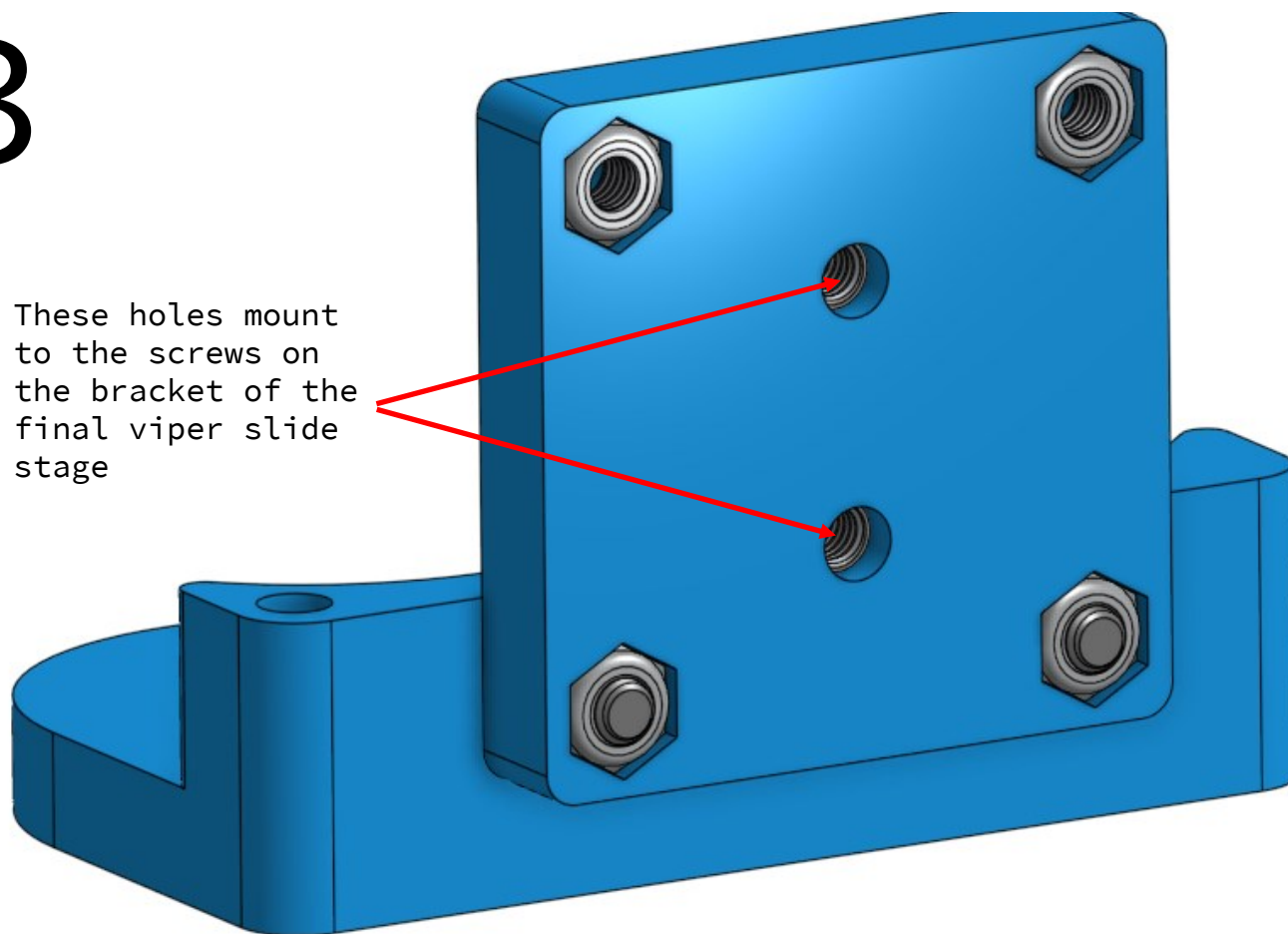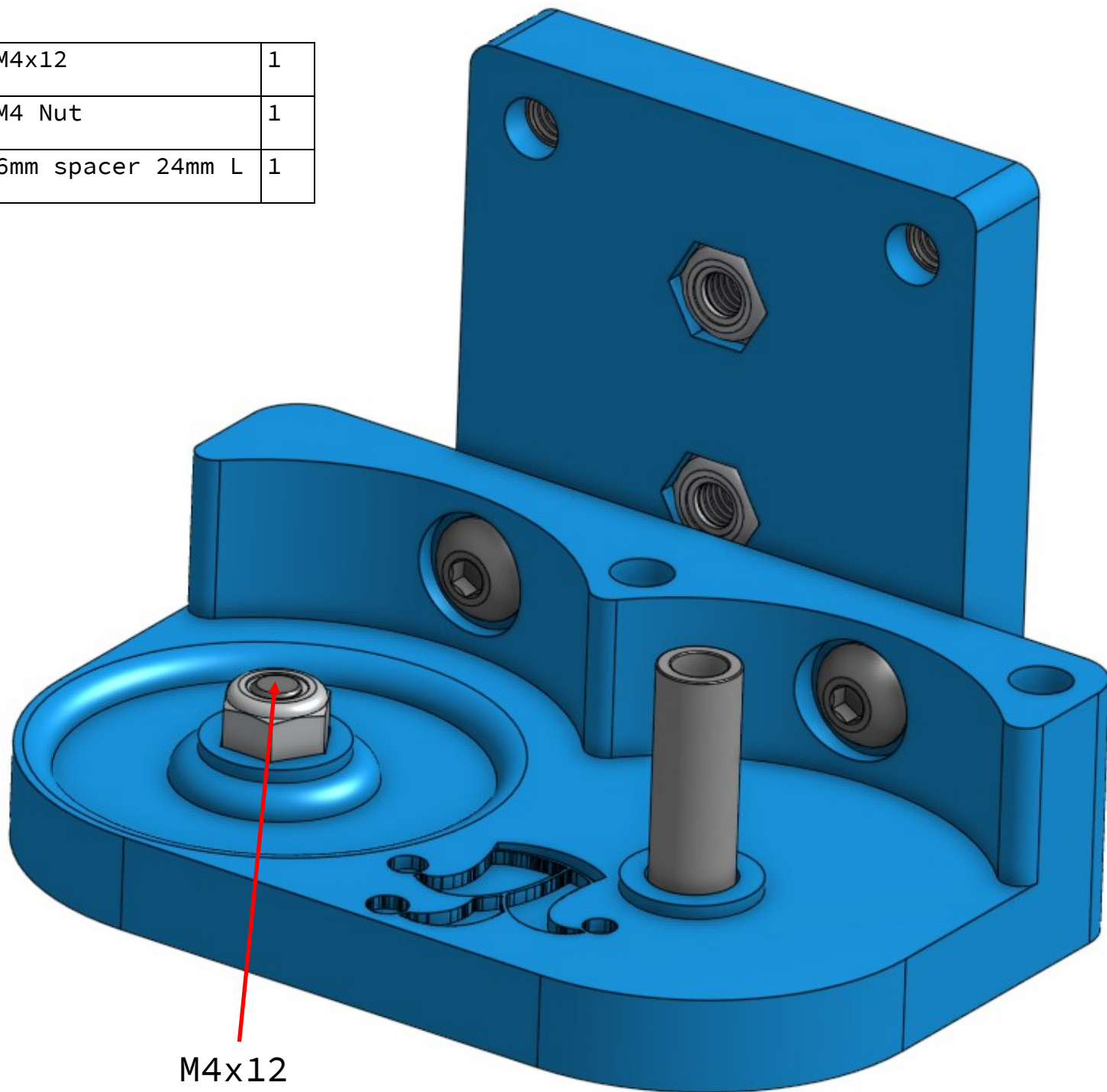
1

| M4 Nut | 6 |

2
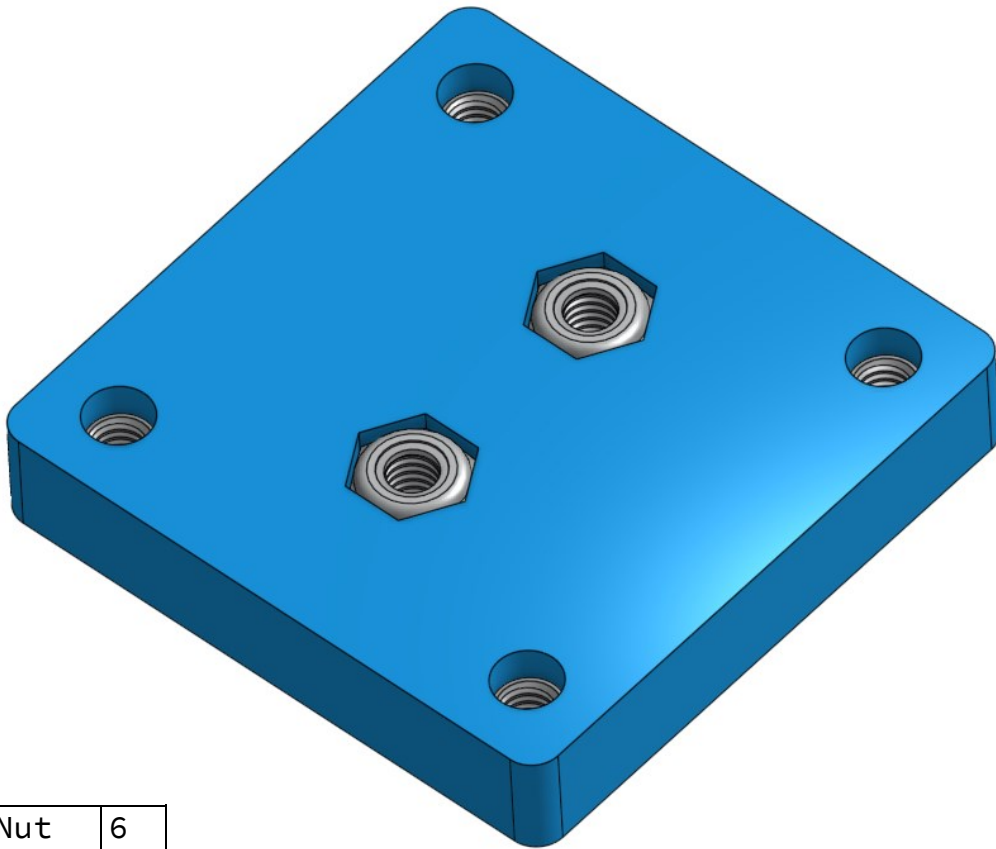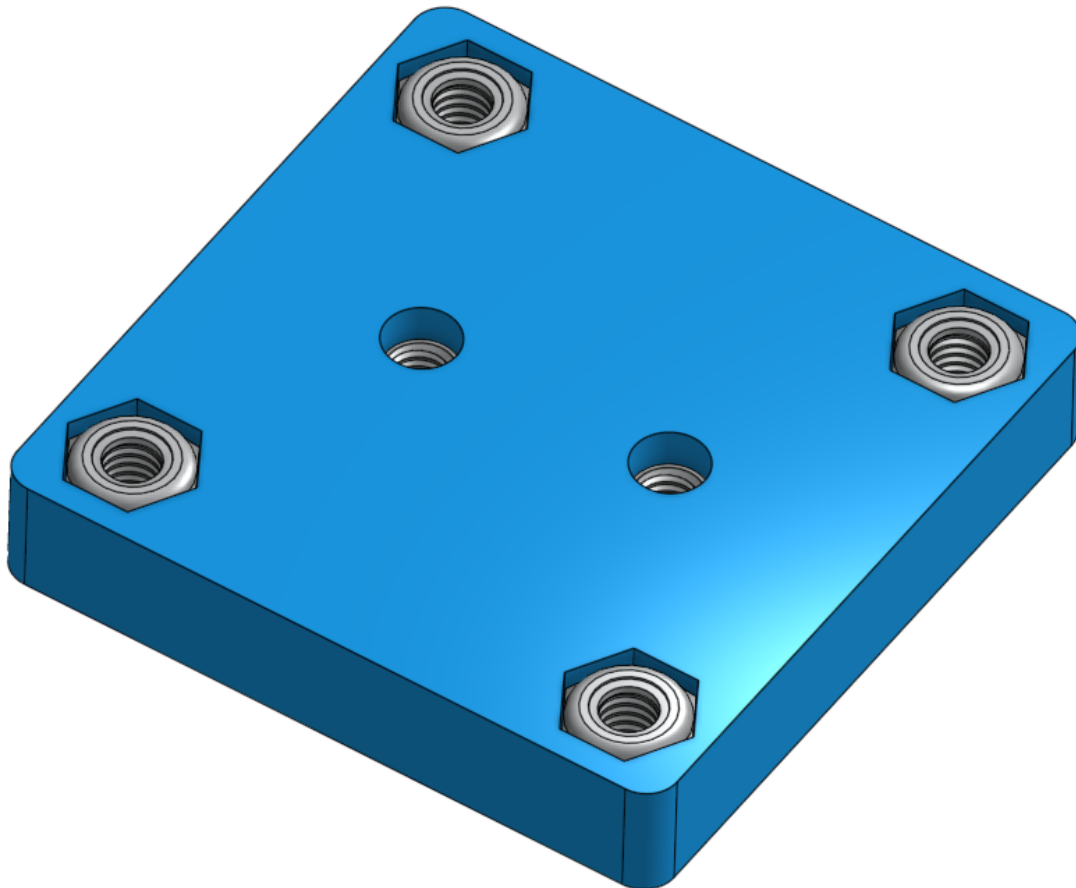
M4x12

M4x12	2

3

These holes mount
to the screws on
the bracket of the
final viper slide
stage

4

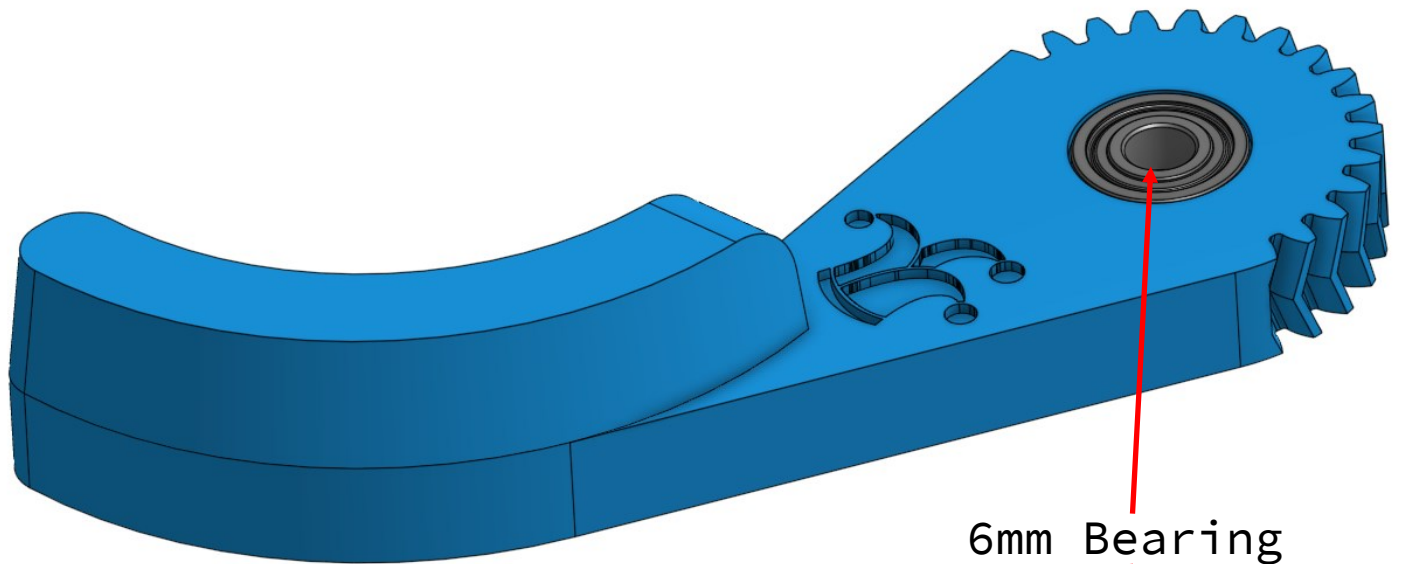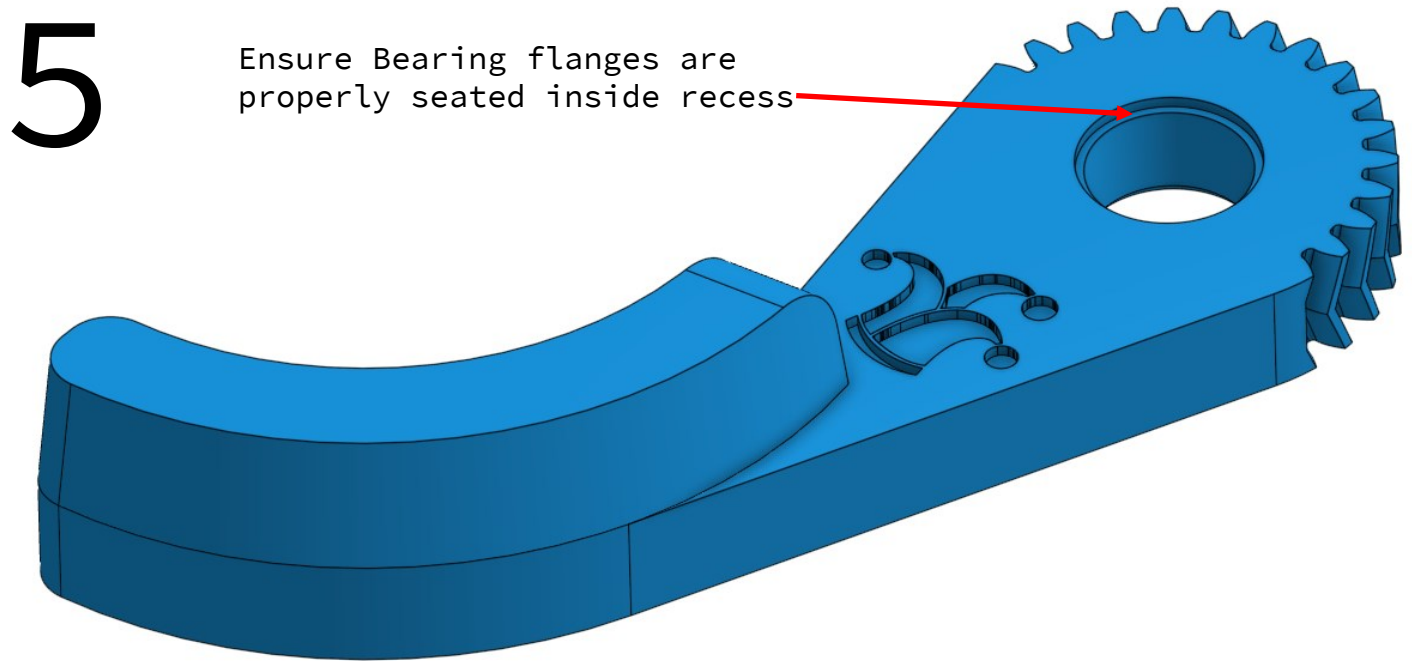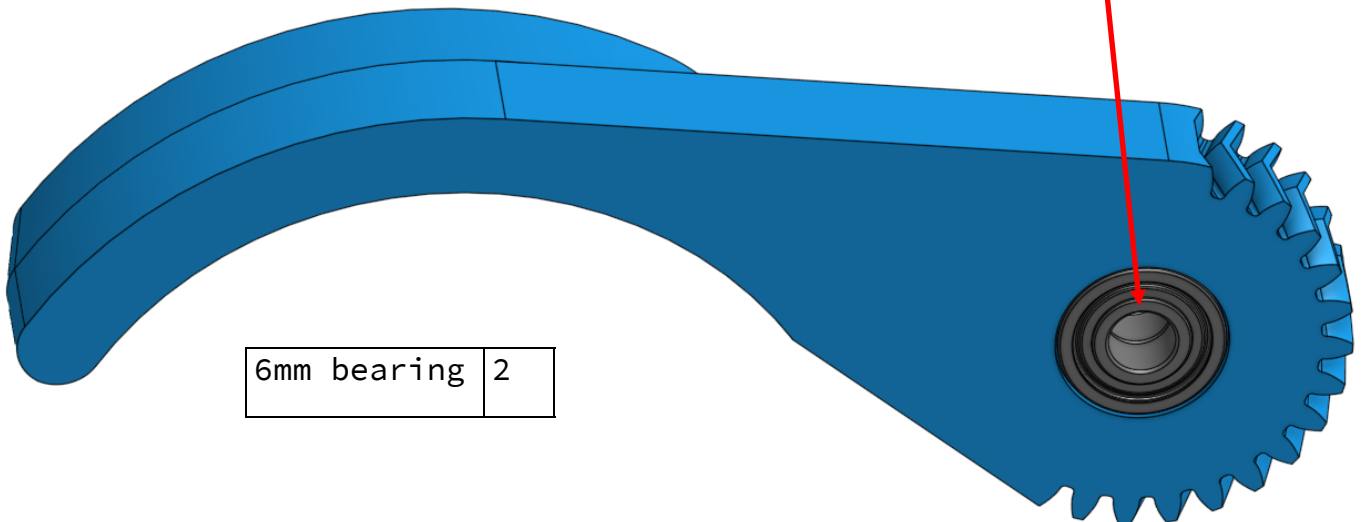| M4x12	1
M4 Nut	1
6mm spacer 24mm L	1

M4x12

5

Ensure Bearing flanges are
properly seated inside recess

6mm Bearing

6mm bearing	2

6
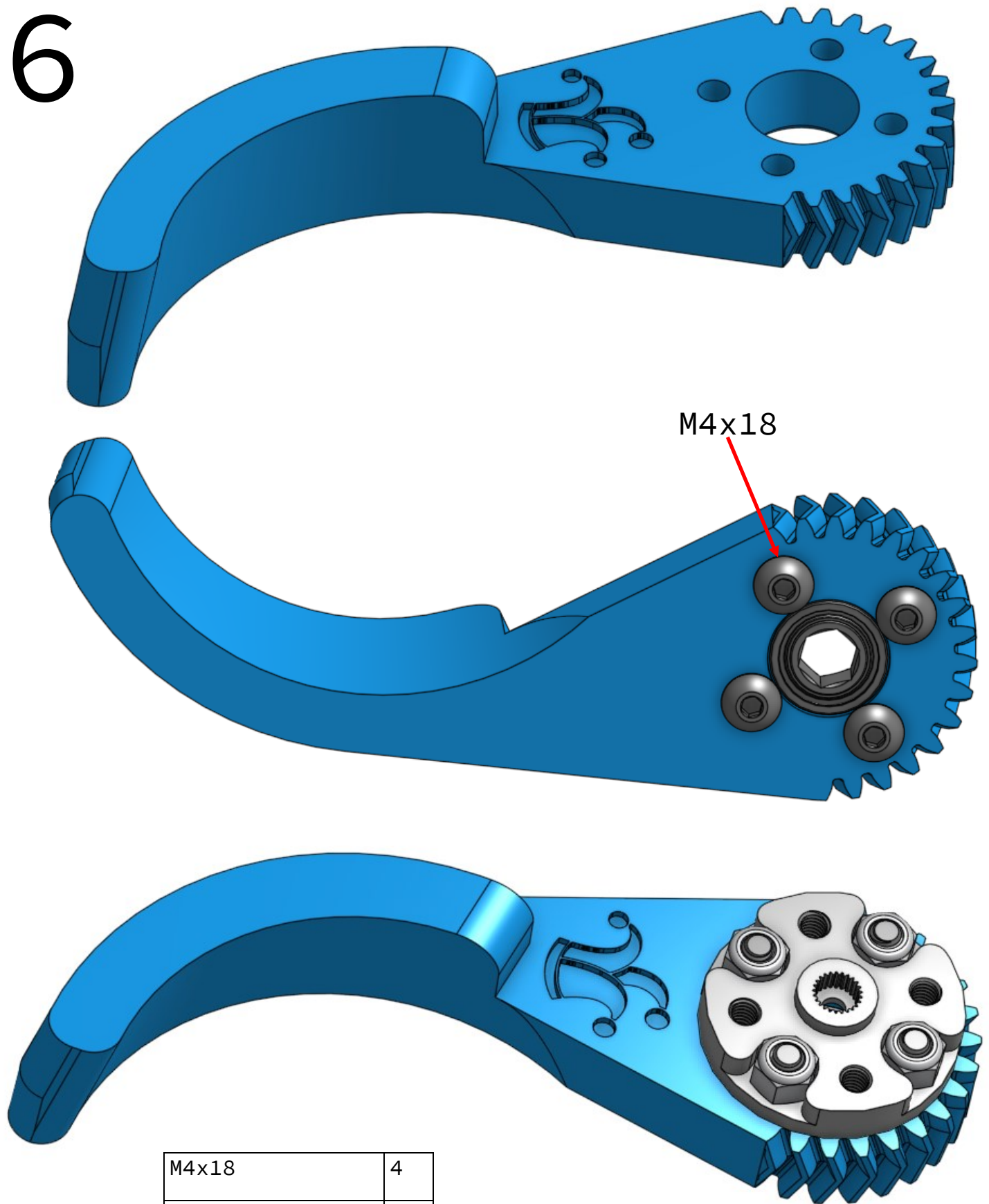
M4x18

M4x18	4
M4 Nut	4
8mm hex bearing	1

7

Ensure teeth are properly meshed and arms aligned to center of assembly.
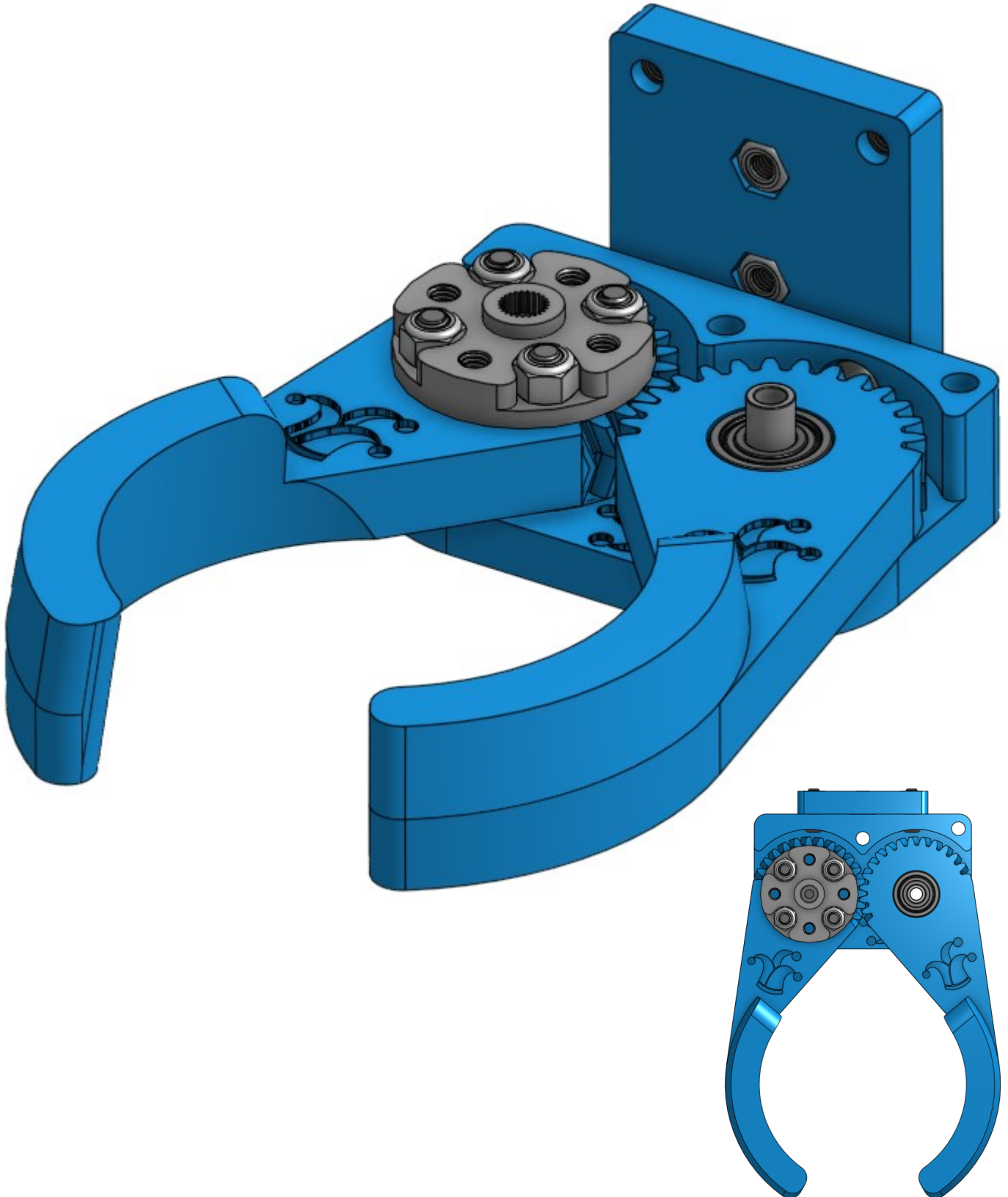
7
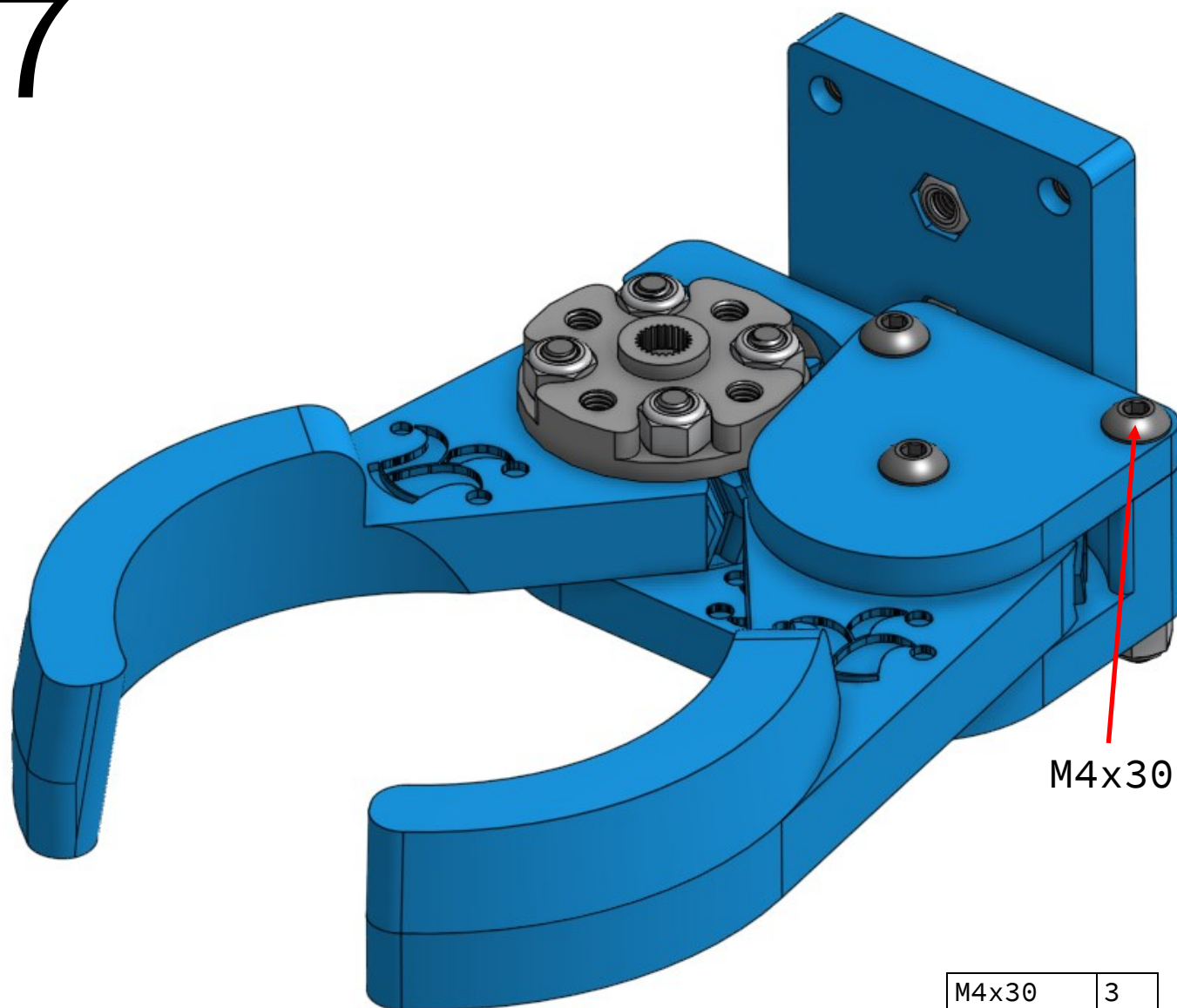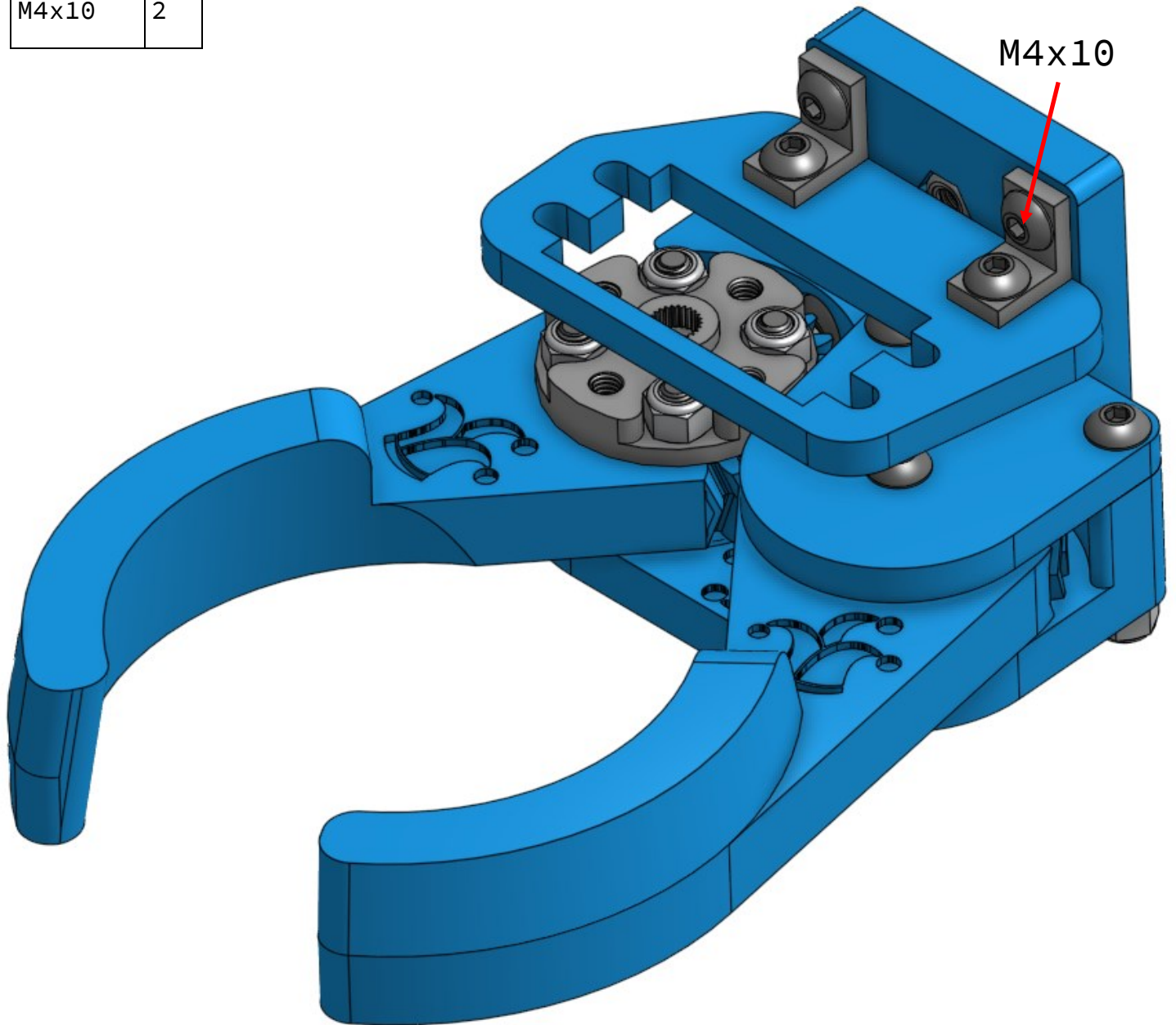
M4x30

M4x30	3
M4 Nut	3

8

M4x12

M4x12	2
M4 Nut	2

9
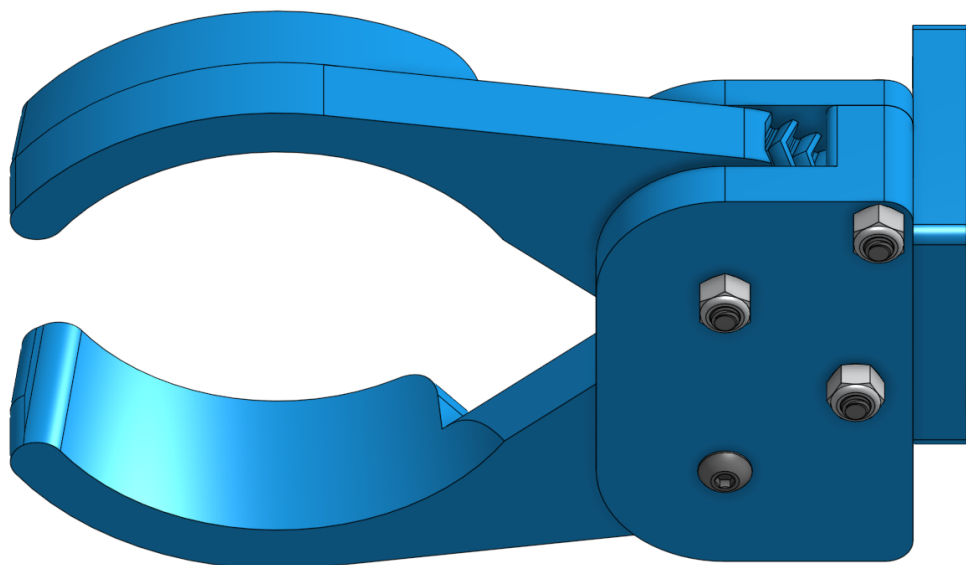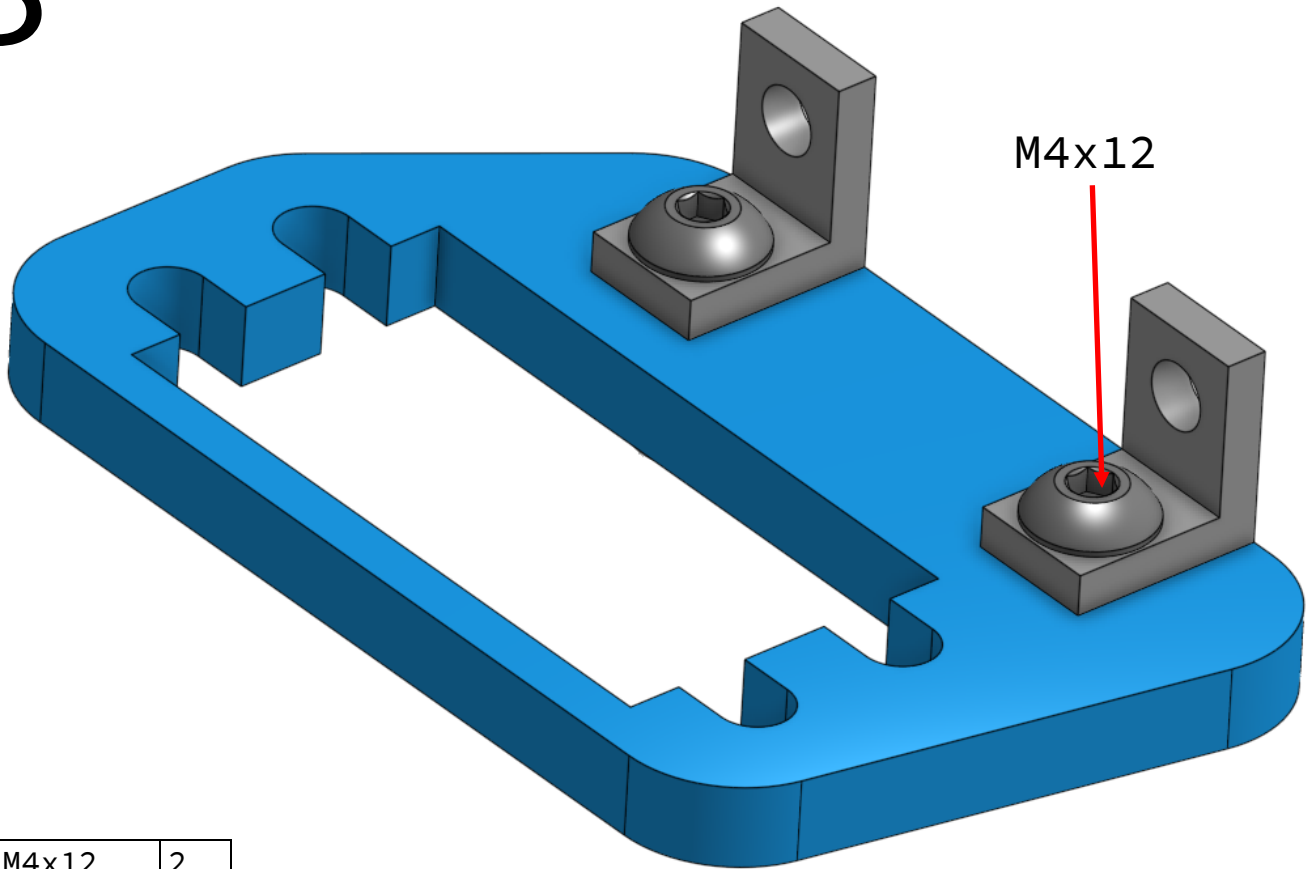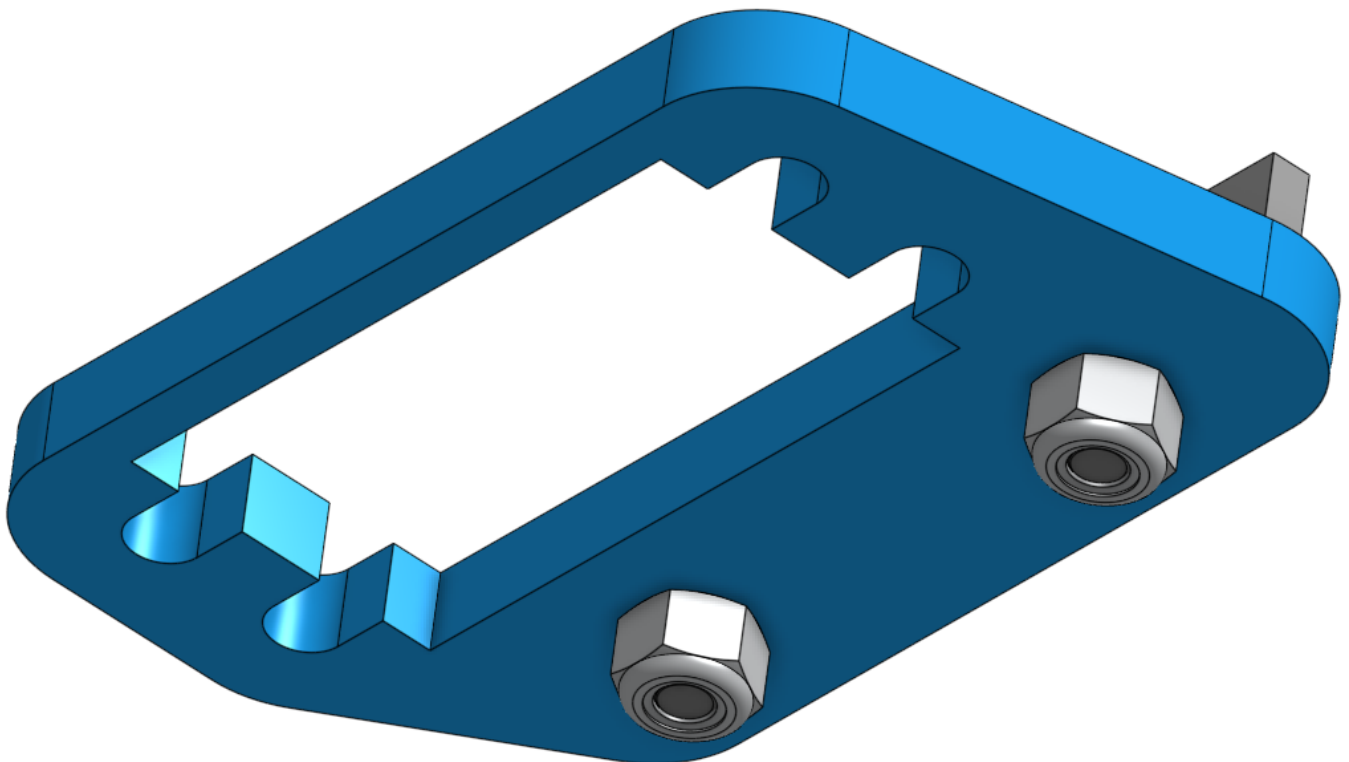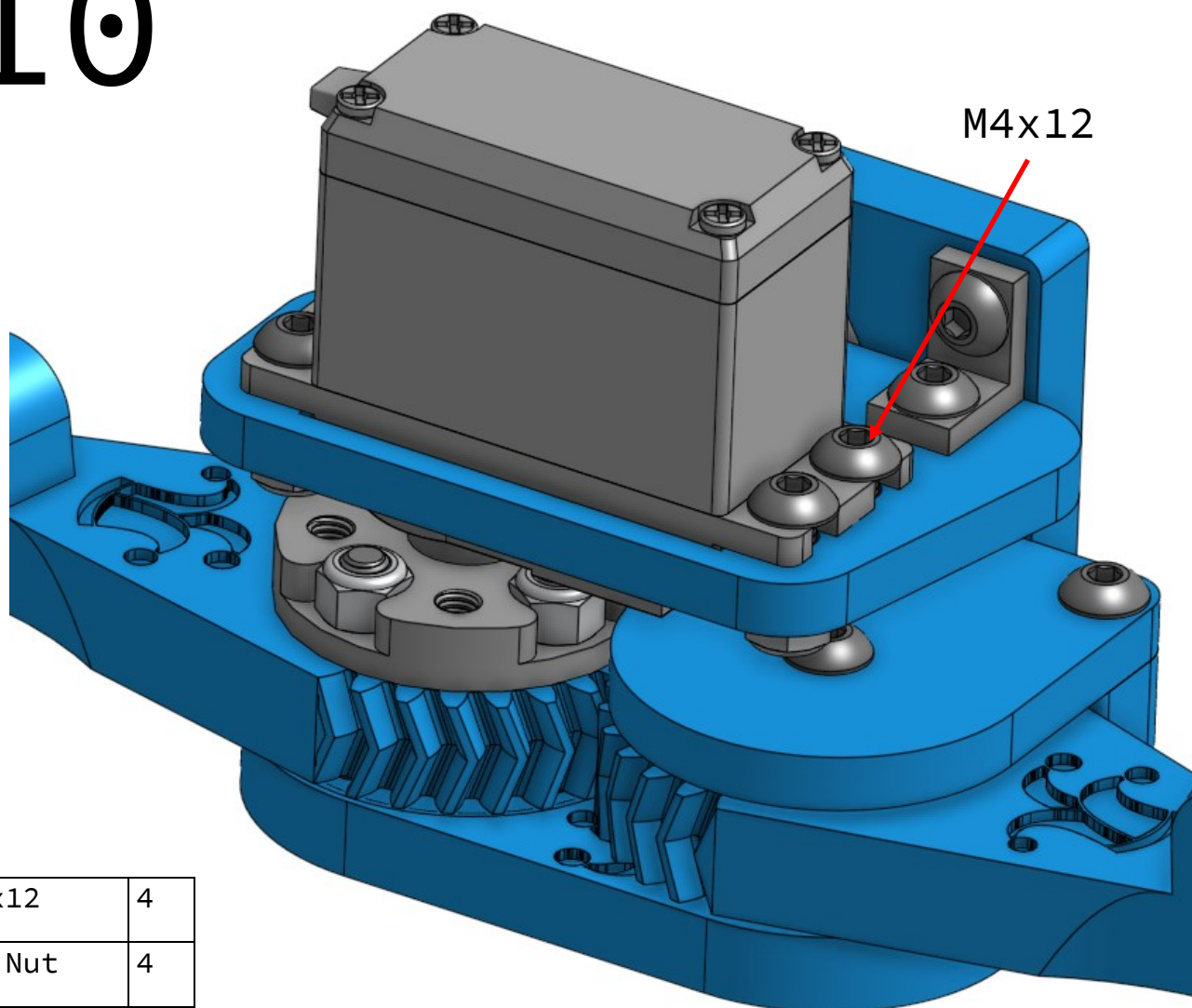
M4x10	2

M4x10
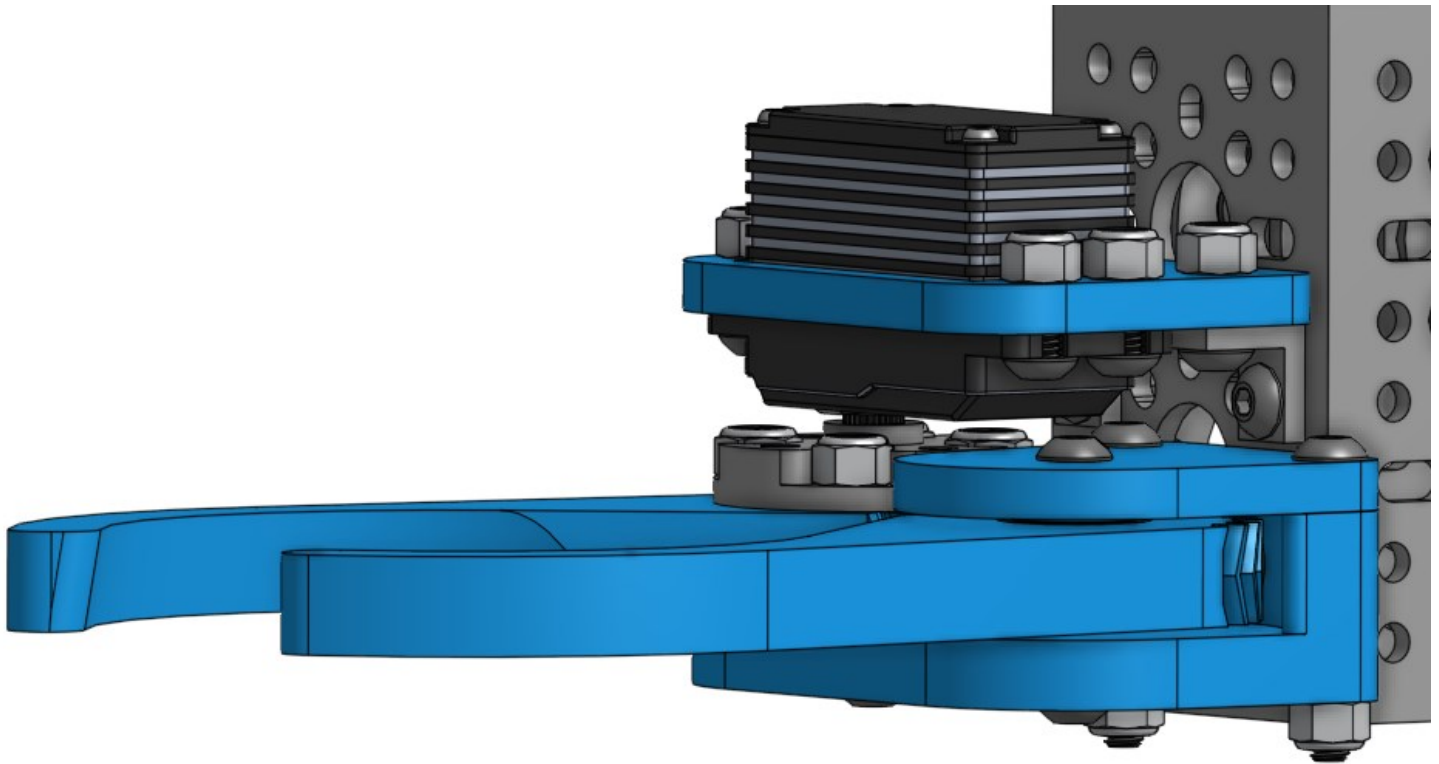
If using an Axon Mini/Mini+ servo, the "Axon Mini servo mount" must be used and be mounted upside down as pictured.

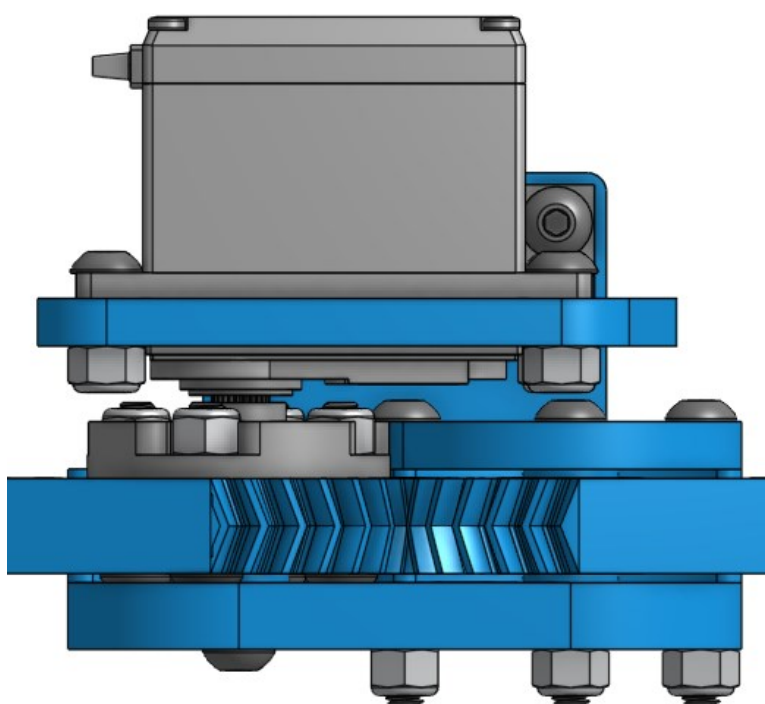Open arms all the way
before installing servo.

10
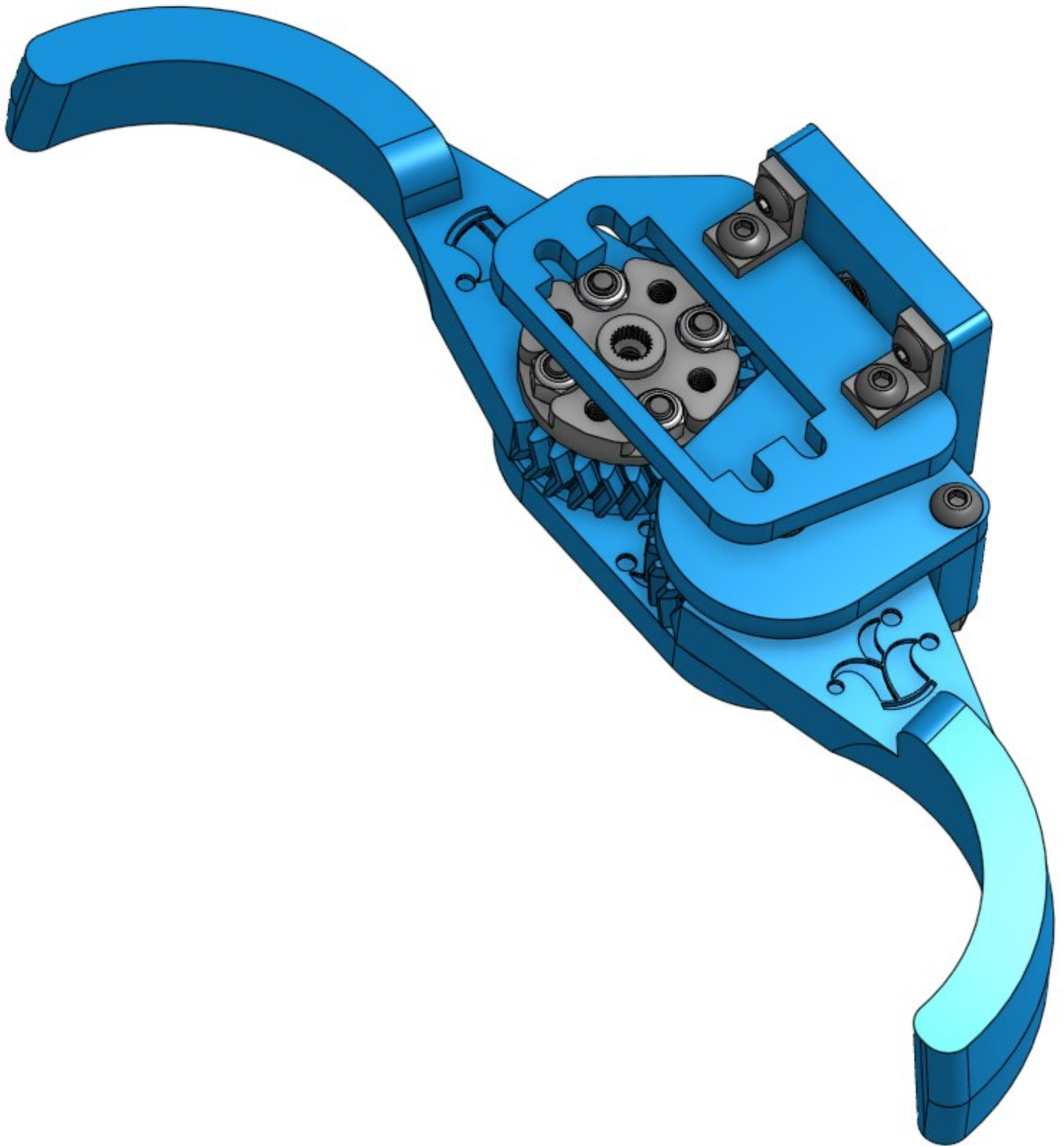
M4x12

| M4x12	4
M4 Nut	4

CRITICAL NOTE:

Initialize servo to halfway through its range of motion (0.5) before installing. If it is not initialized properly, parts will break when it moves.
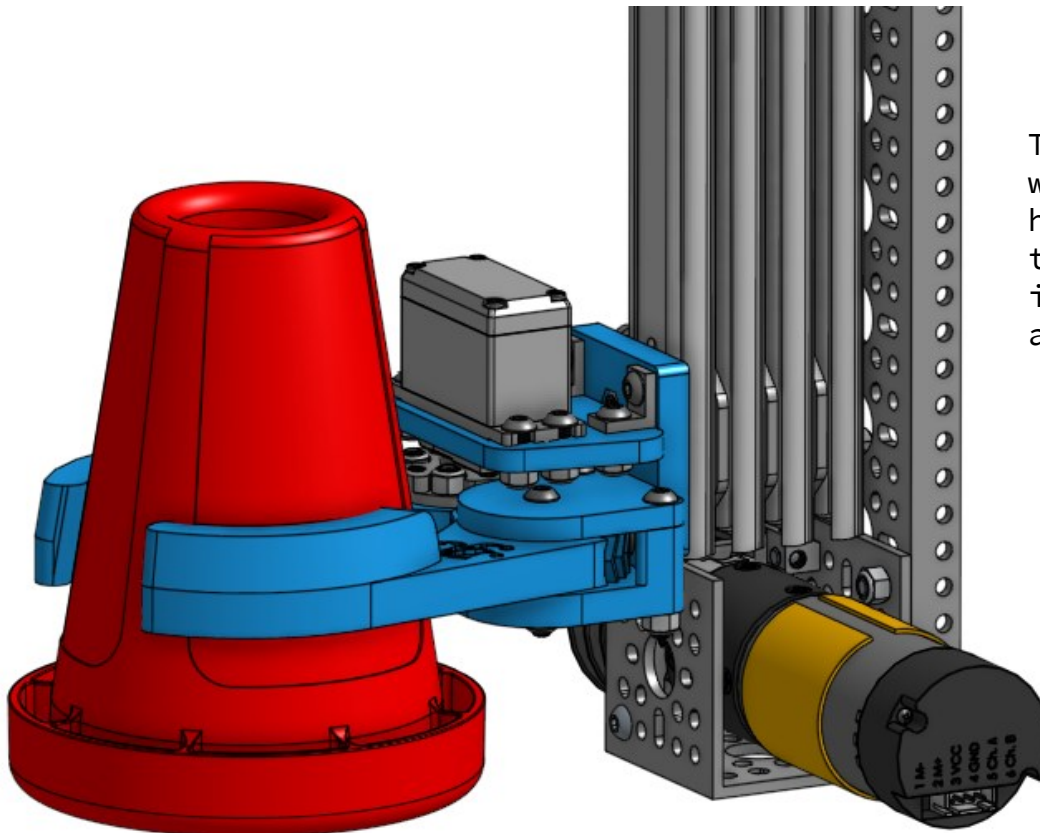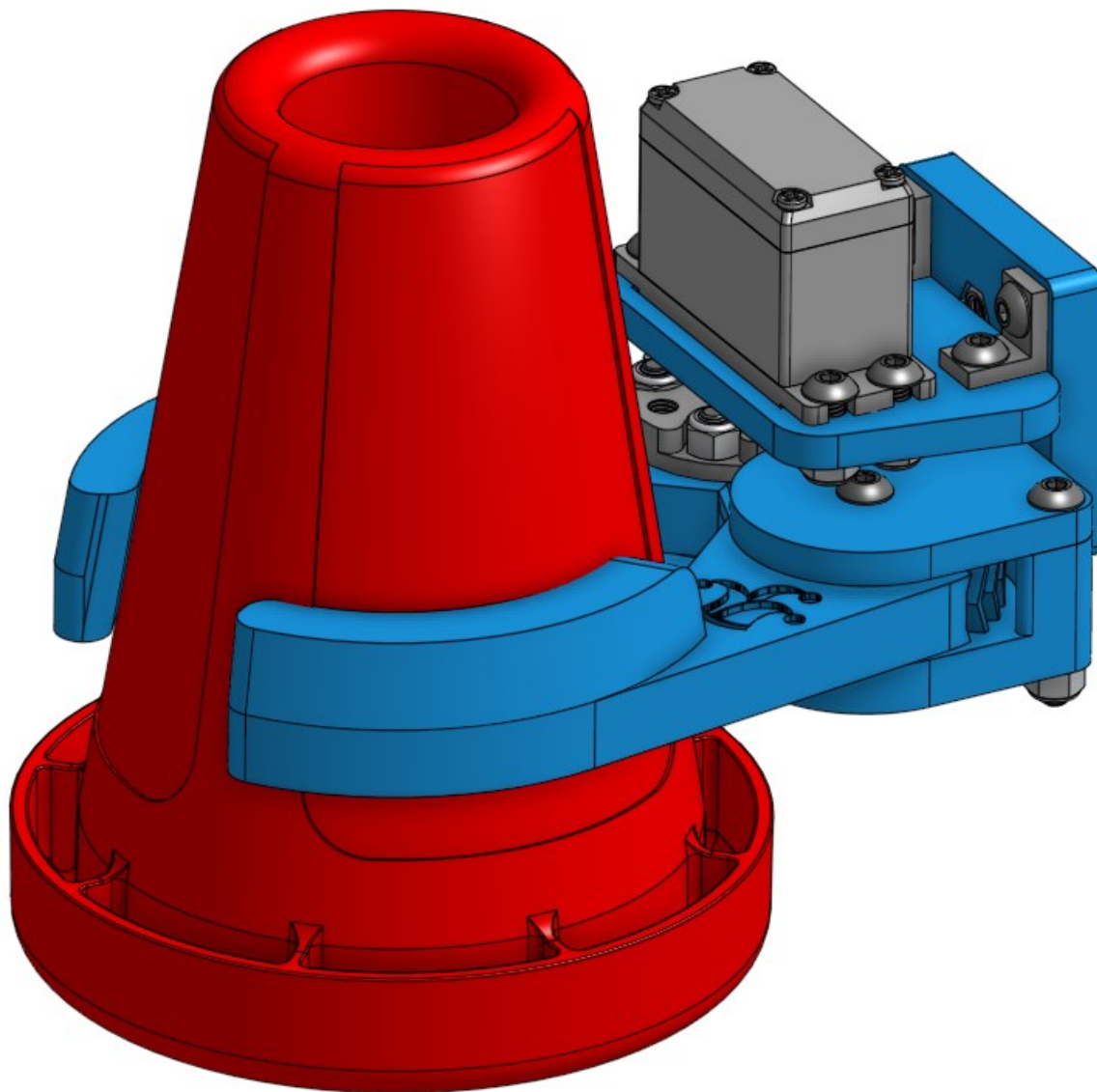
HOW TO MOUNT TO VIPER SLIDES

To mount the claw to the Viper slide kit, you will need to make a small modification to the slide assembly. The 6mm screws that hold on the lower pulley bracket on the final slide must be exchanged for 12mm bolts. Additionally, it will be **significantly** easier to mount the claw if you drill out the holes in the bracket to remove their threads. The locknuts built into the claw will ensure that it is held firmly onto the lift. In fact, this connection is stronger than the original threaded connection between the 6mm screws and the bracket.

Drill out these holes to 4mm (3/16") and replace screws with 12mm
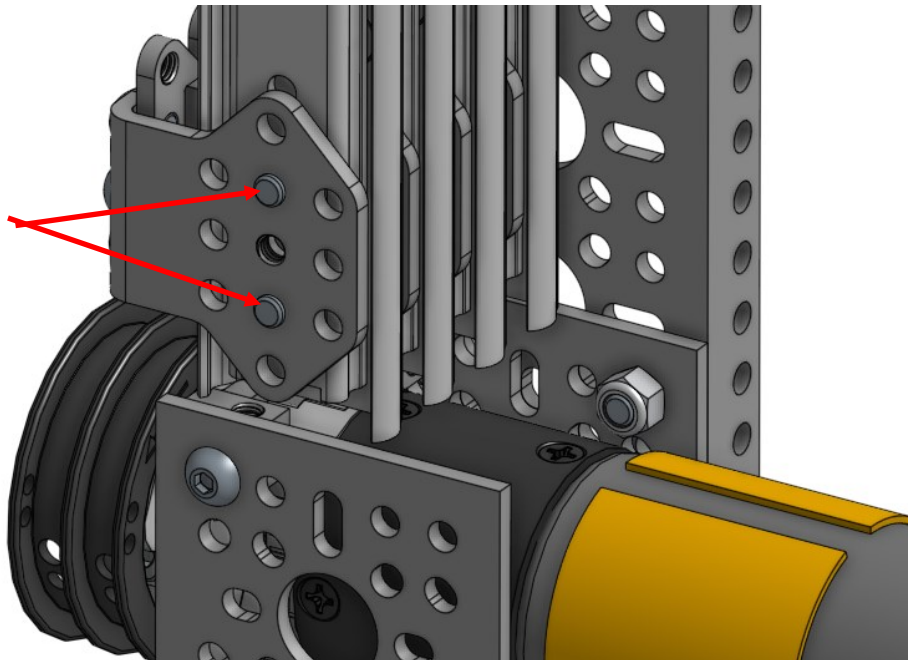
These longer screws will thread into the holes in the back of the claw. The locknuts inside will secure the assembly as shown.

ADDITIONAL INFORMATION

CAD: https://cad.onshape.com/documents/129dc57b75a629234258d945/w/393048bd49f90455ff9c0a22/e/27d7fd42ed9d4c0cc4e530dd

CONTACT: G-Force#5900 on Discord

LATEST STLs and INSTRUCTIONS: https://github.com/The-Loony-Squad/PowerPlay-Claw