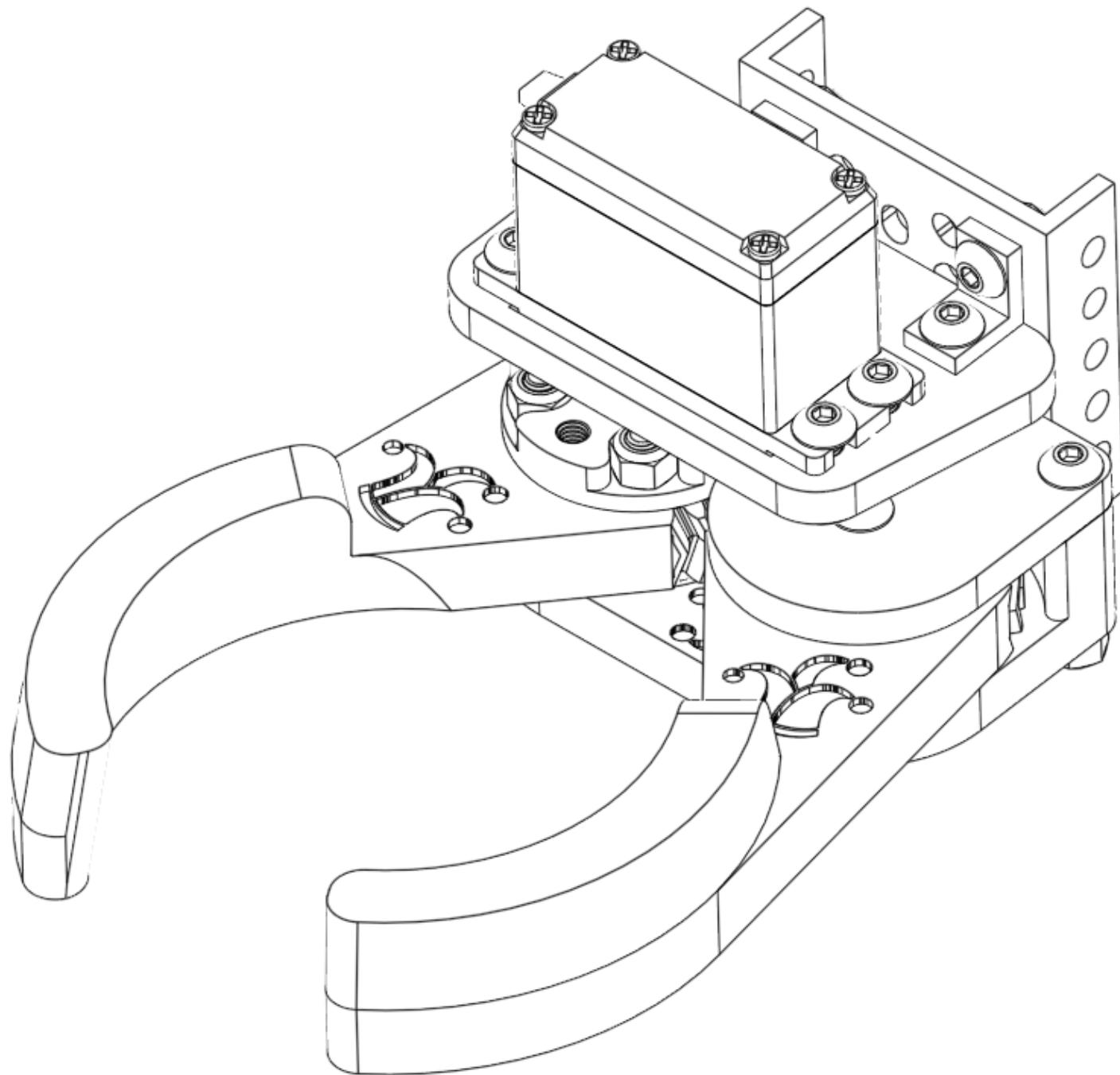


FULL ASSEMBLY INSTRUCTIONS



LOONY CLAW: v1.1

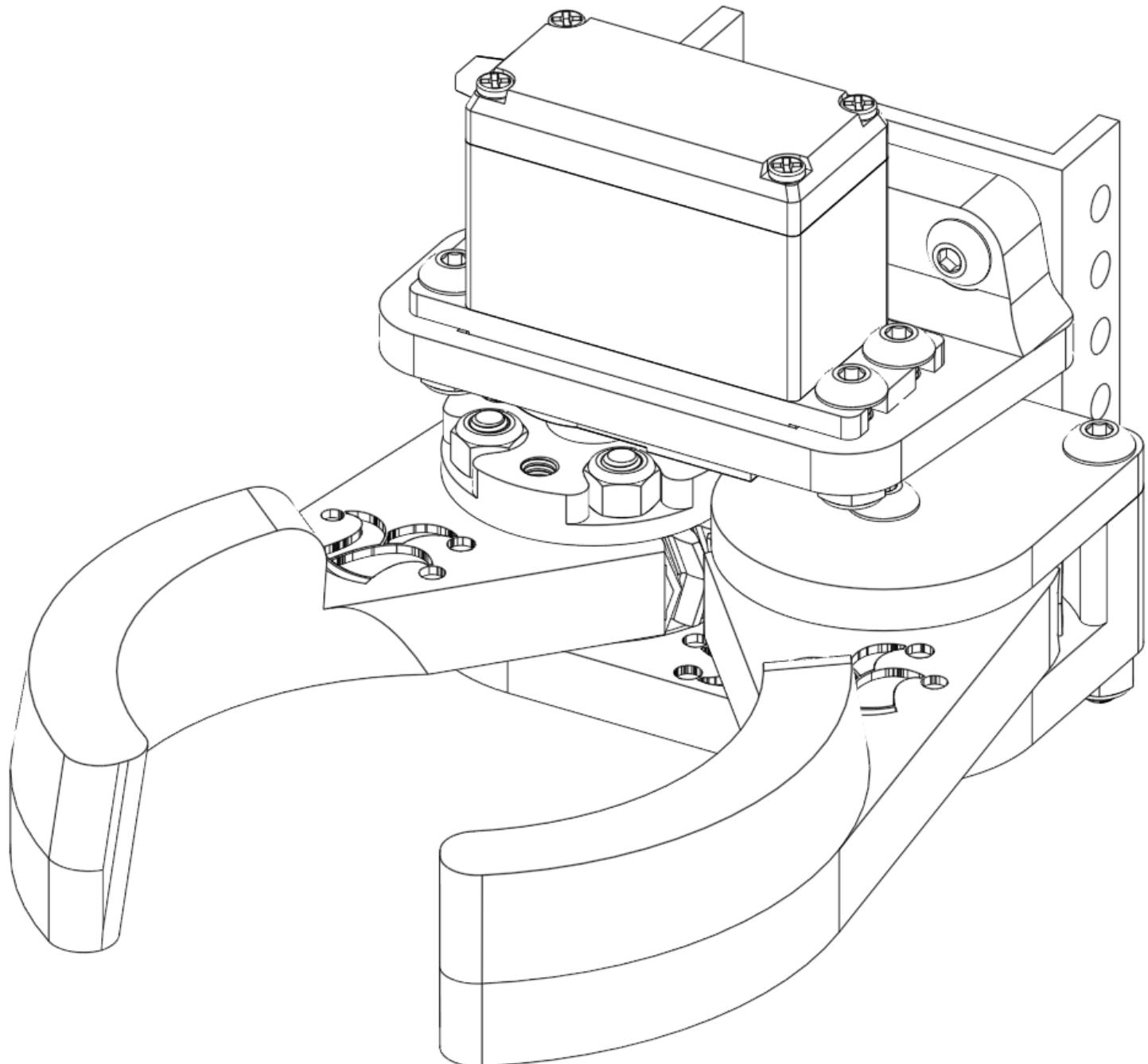
Designed by Jameson

2022 The Loony Squad

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32x32 Mounting Pattern



Use this design to mount a claw to any goBILDA U channel, low side U channel, grid plate, or anything else with a 32x32 hole pattern. This is the original Loony Claw design.

BILL OF MATERIALS

PART NAME	SKU	QUANTITY	CHECK
block mount		1	
idle arm		1	
servo arm		1	
top plate		1	
servo mount		1	
M4x12	2802-0004-0012	7	
M4x16	2802-0004-0016	2	
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	
6mm Bearing	1611-0514-0006	2	
8mm Hex Bearing	1611-0514-4008	1	
Surgical tube/hot glue/ grippy material			

NOTES:

- This design will allow you to mount a claw to anything with a 32x32mm hole pattern. This includes, but is not limited to, any goBILDA U channel, low side U channel, or grid plate as well as custom parts.
- 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

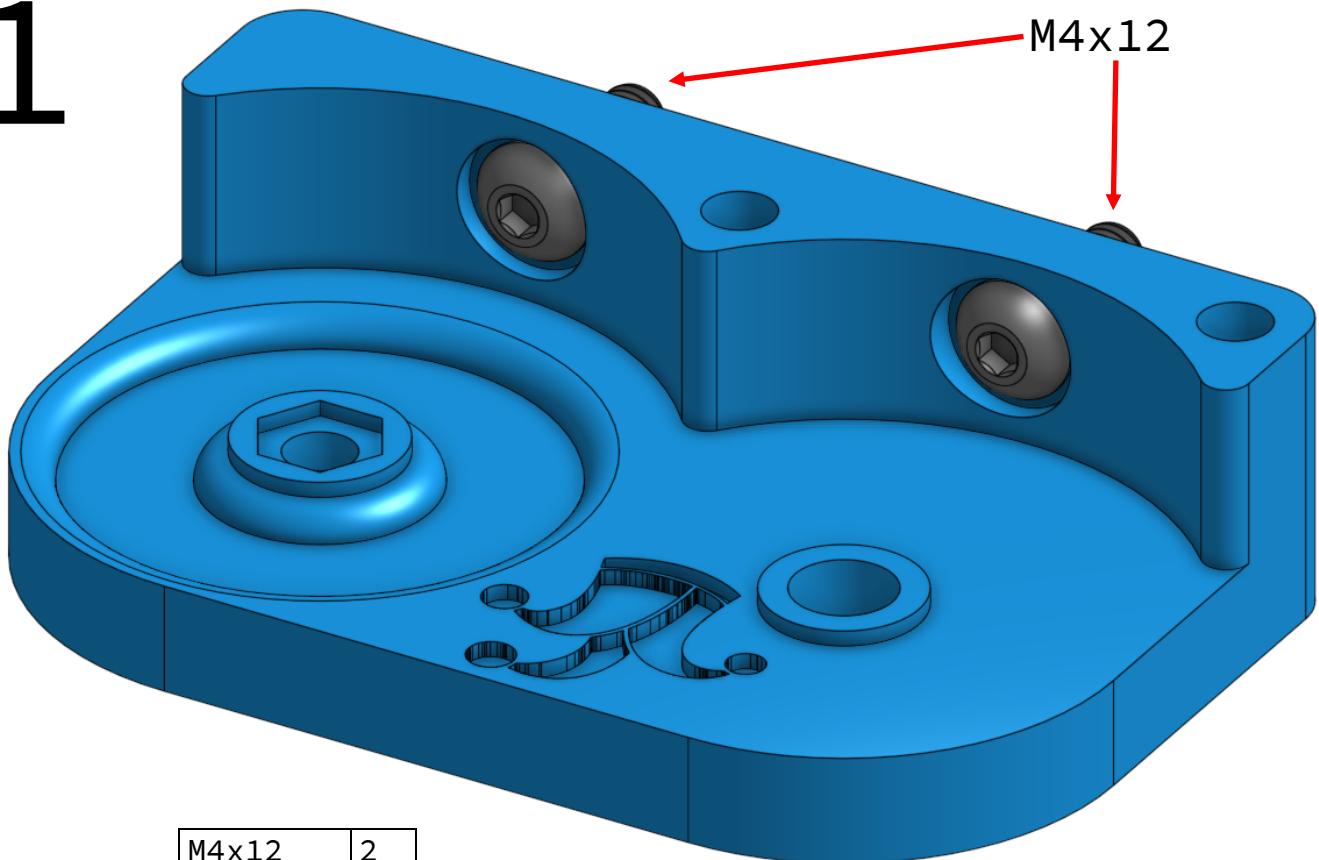
NOTE: Your printer or filament may vary. This is intended only as a starting point.

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
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

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.

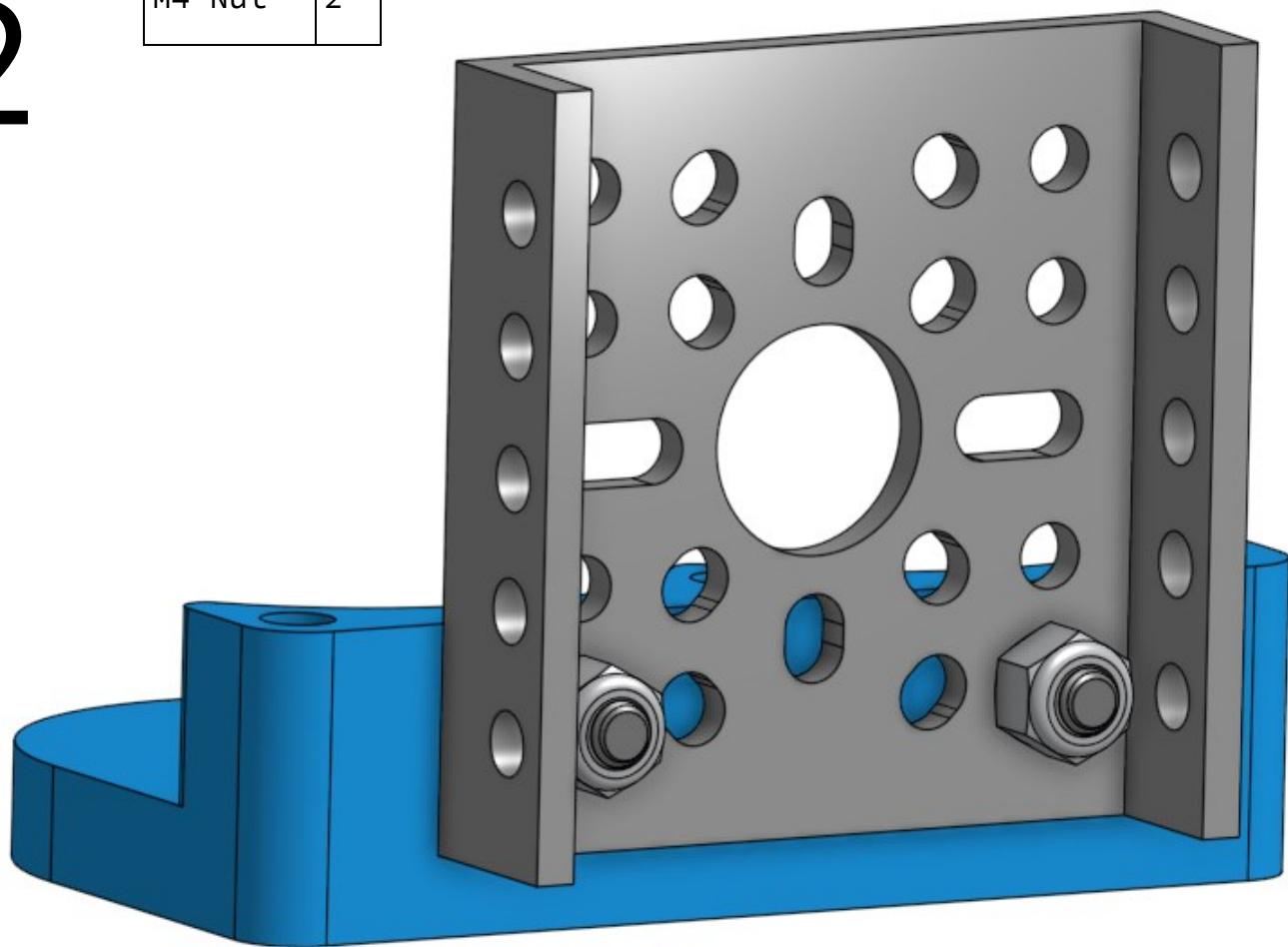
NOTE: With the goal of creating the most resilient claw possible, we printed the claws in Overture TPU with a 0.6mm nozzle at 0.3mm layers with 2 walls and 15% infill. These claws were flexible enough to withstand a full speed collision with the field wall, but were too soft to grip the cone effectively.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

1



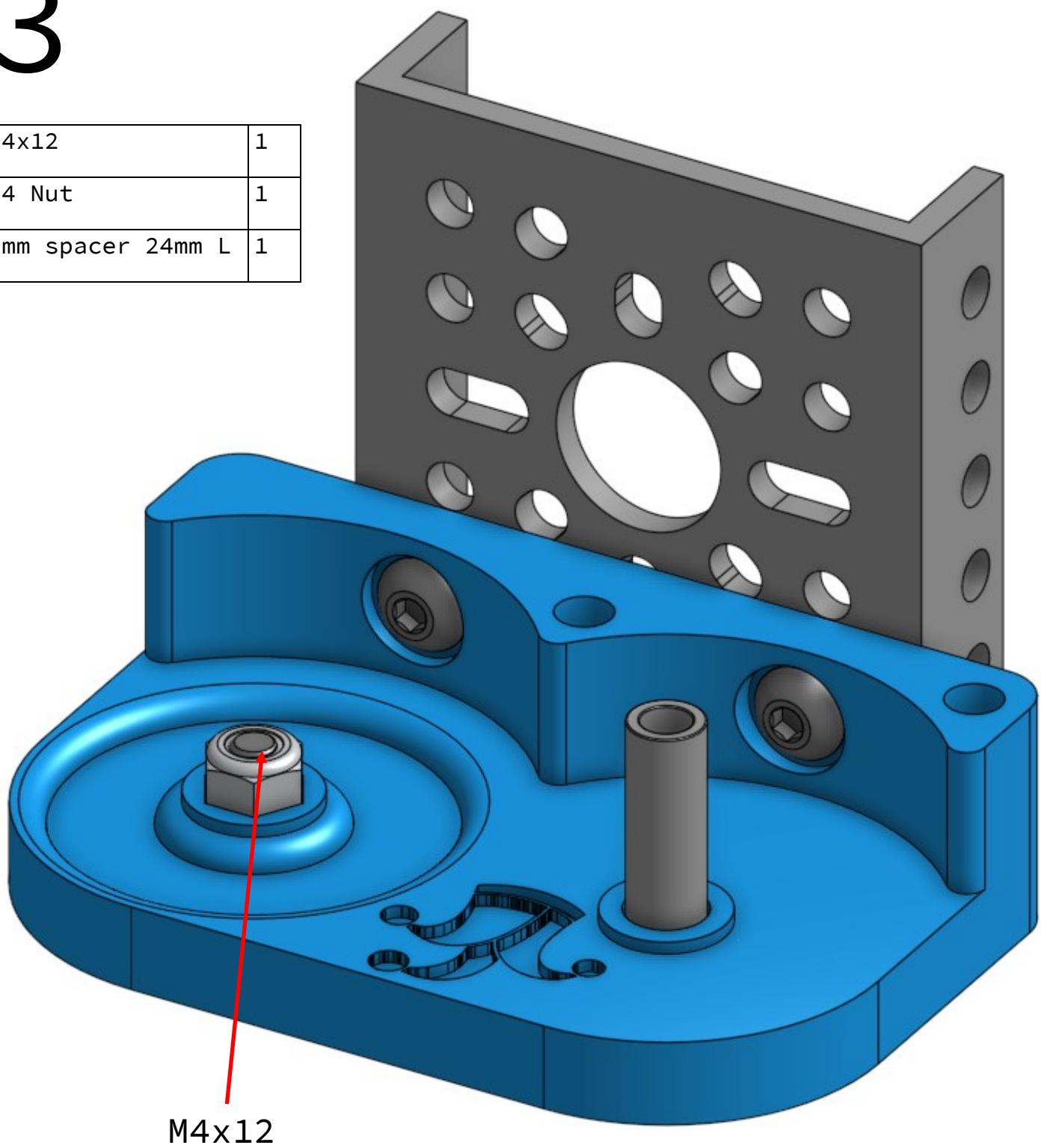
M4x12	2
M4 Nut	2

2



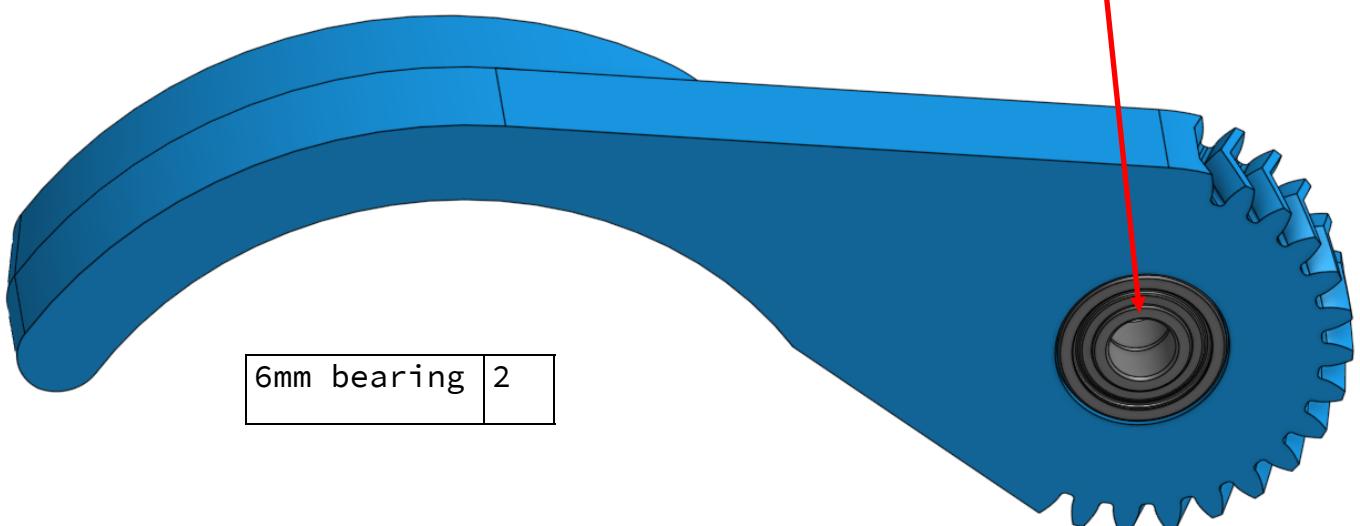
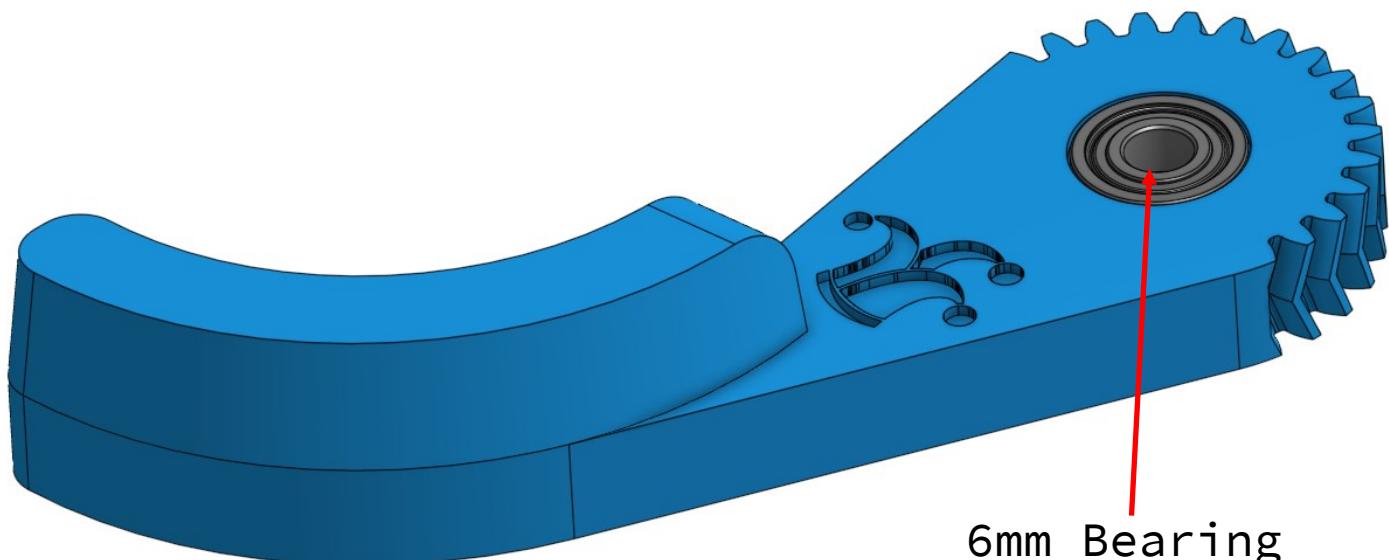
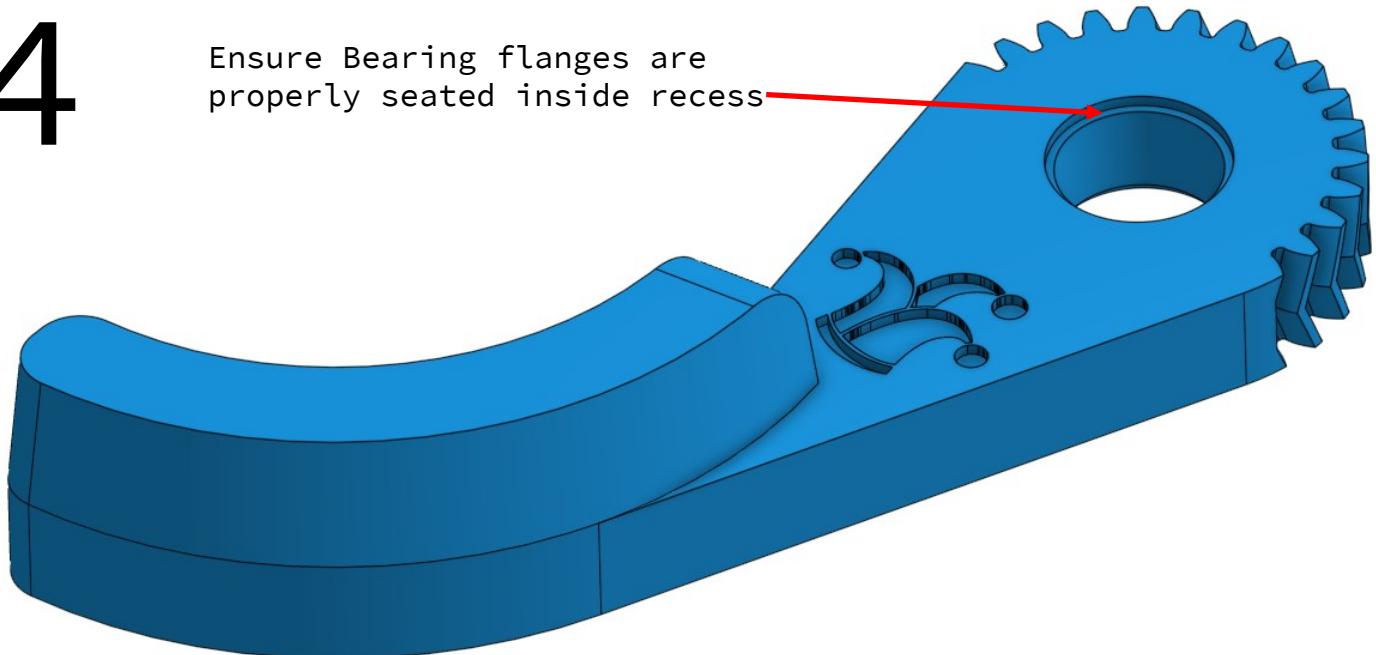
3

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

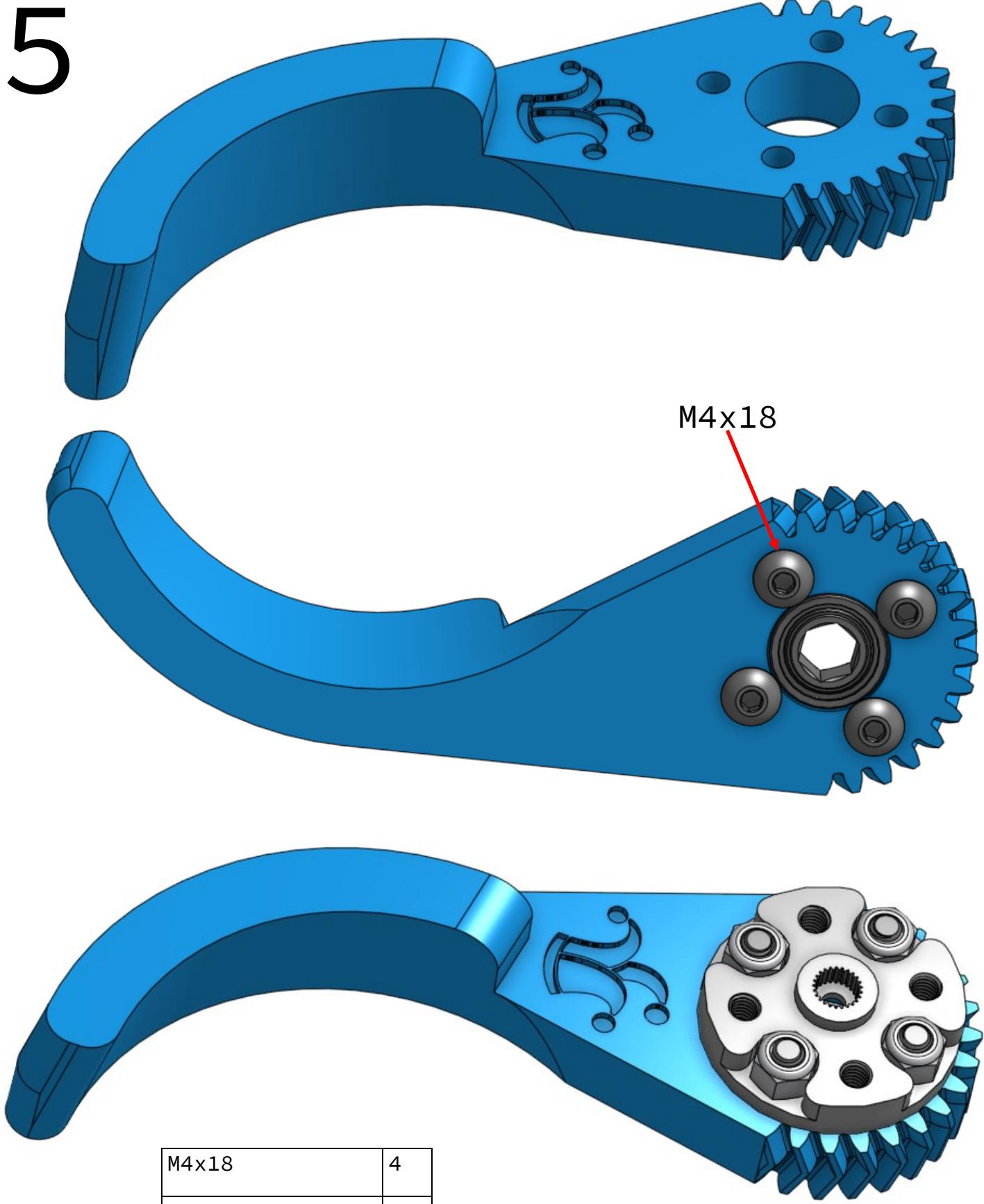


4

Ensure Bearing flanges are
properly seated inside recess



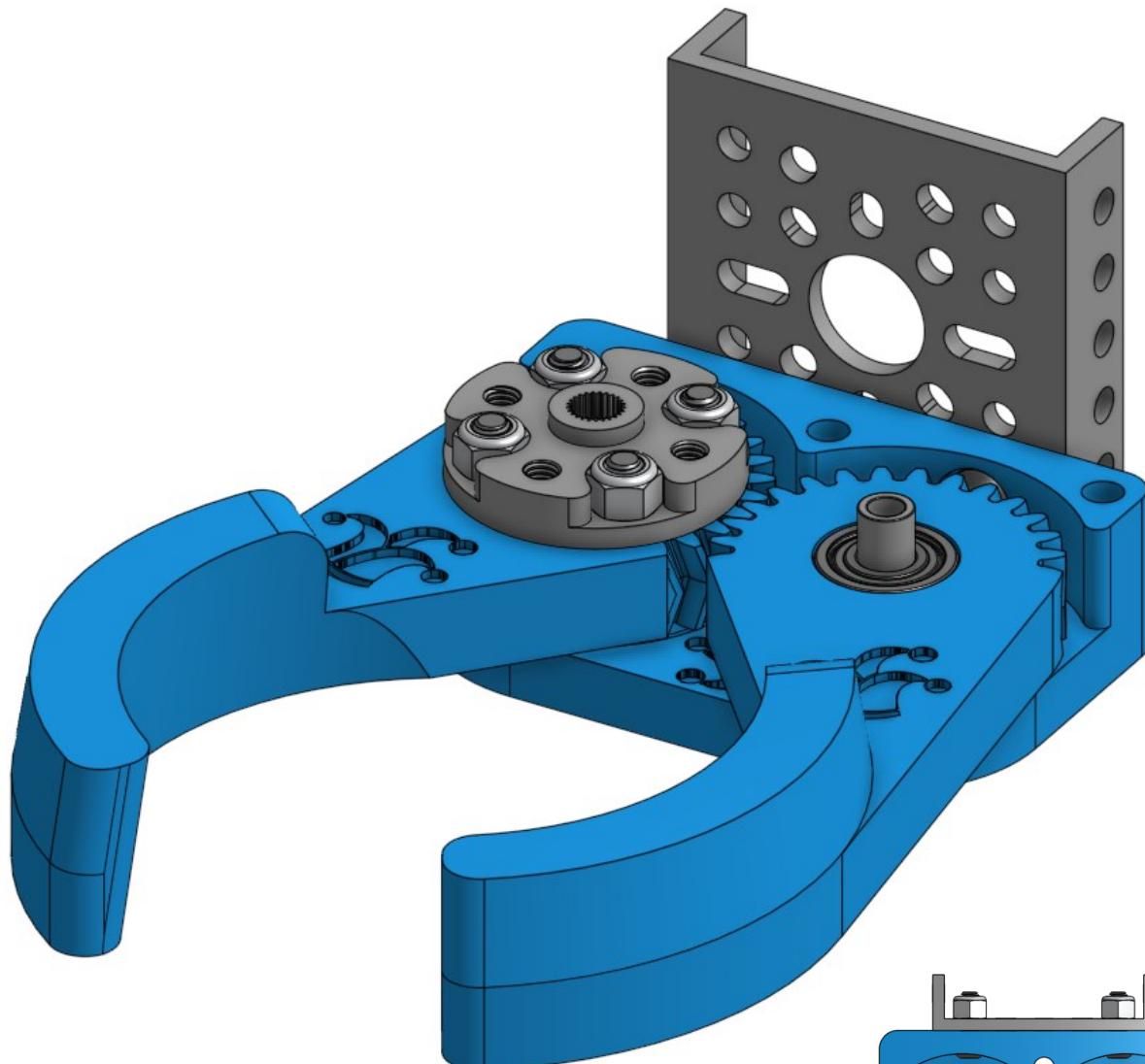
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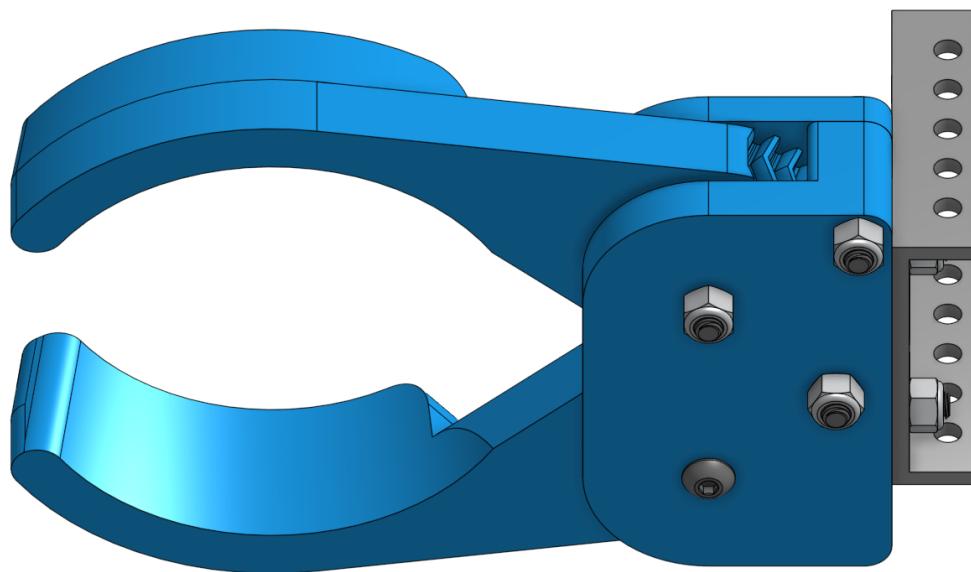
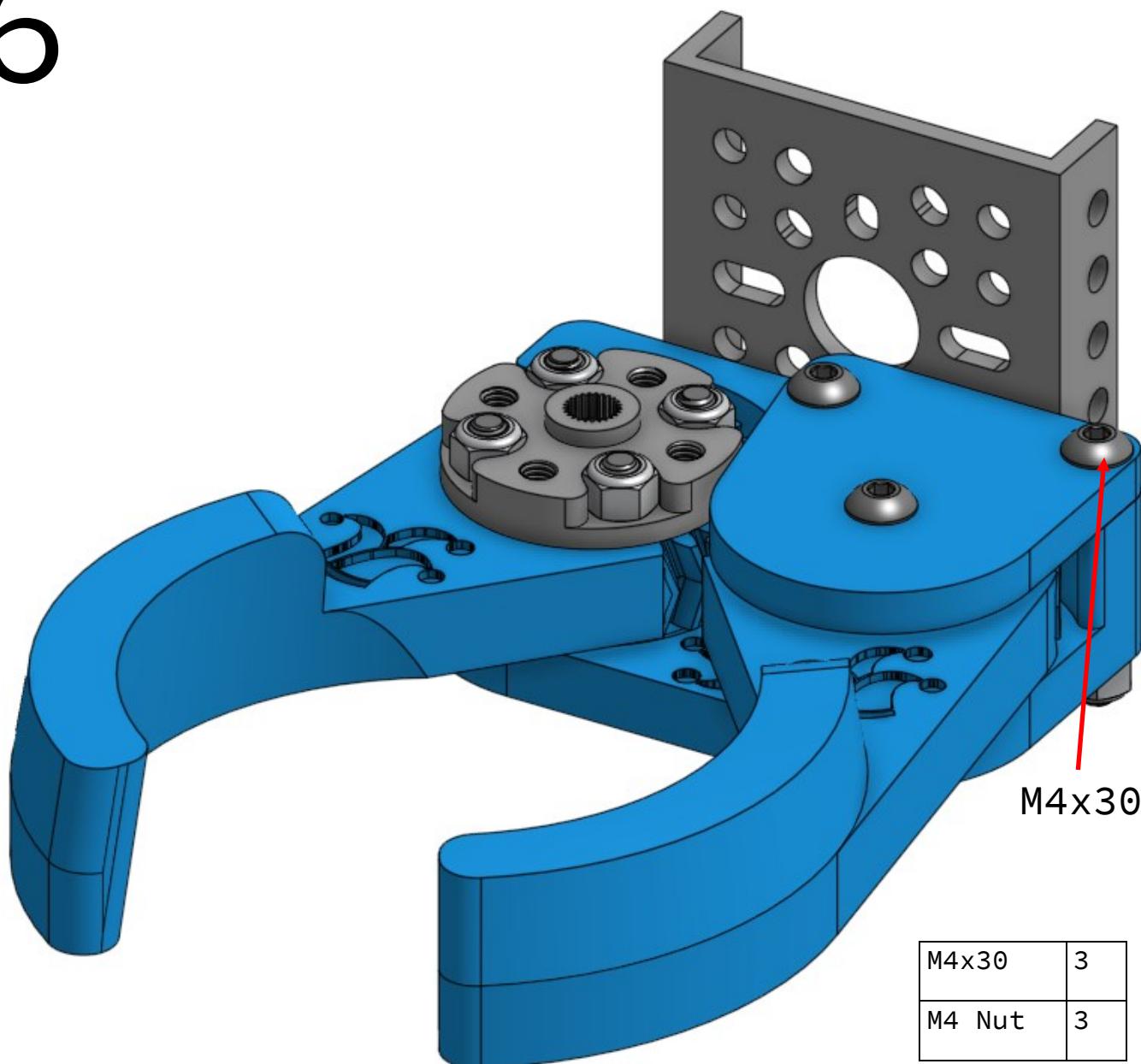
M4x18	4
M4 Nut	4
8mm hex bearing	1

6

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

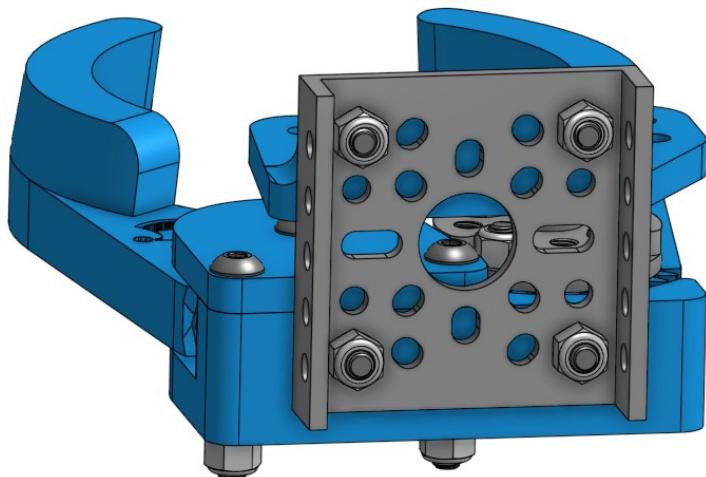
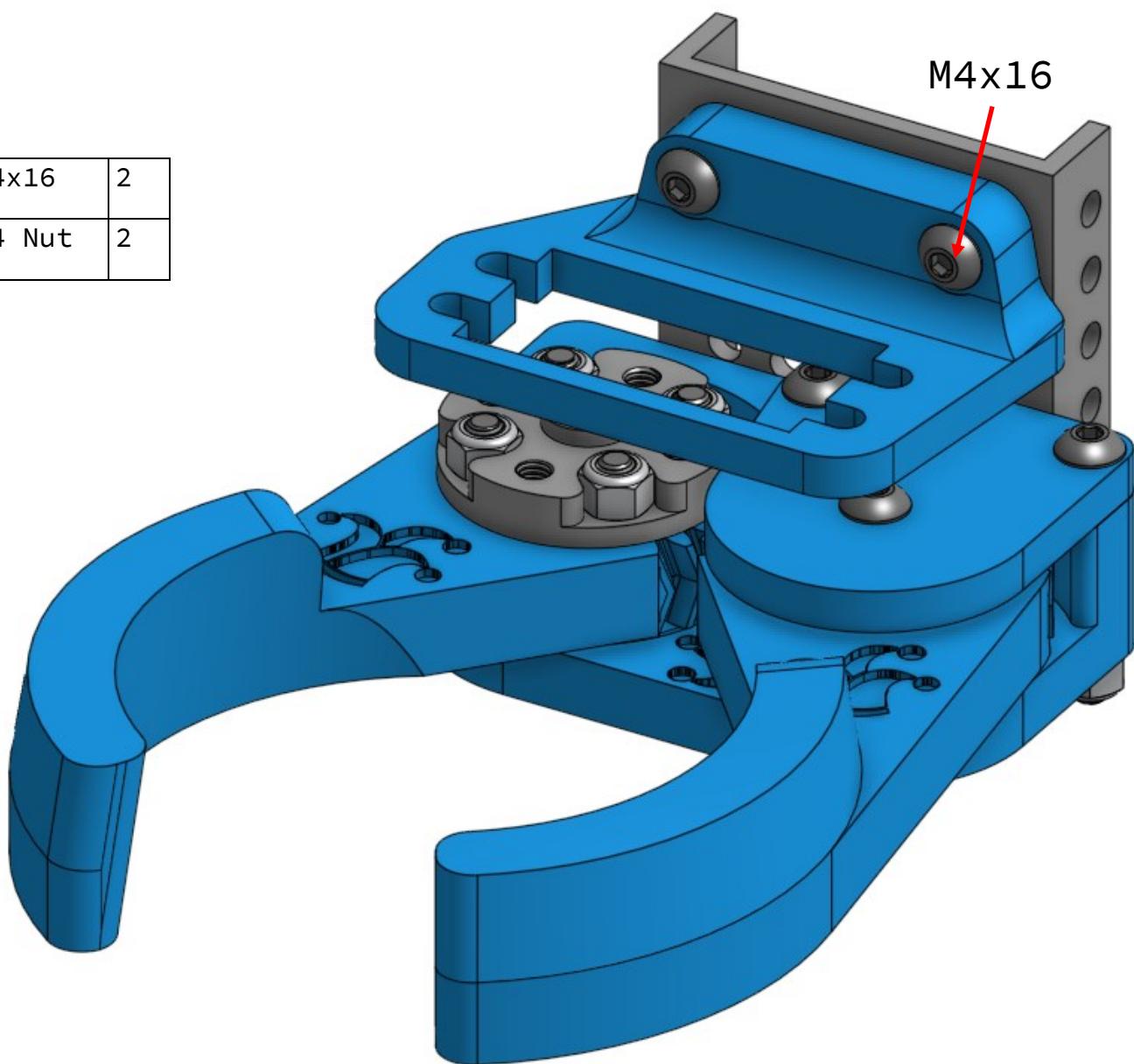


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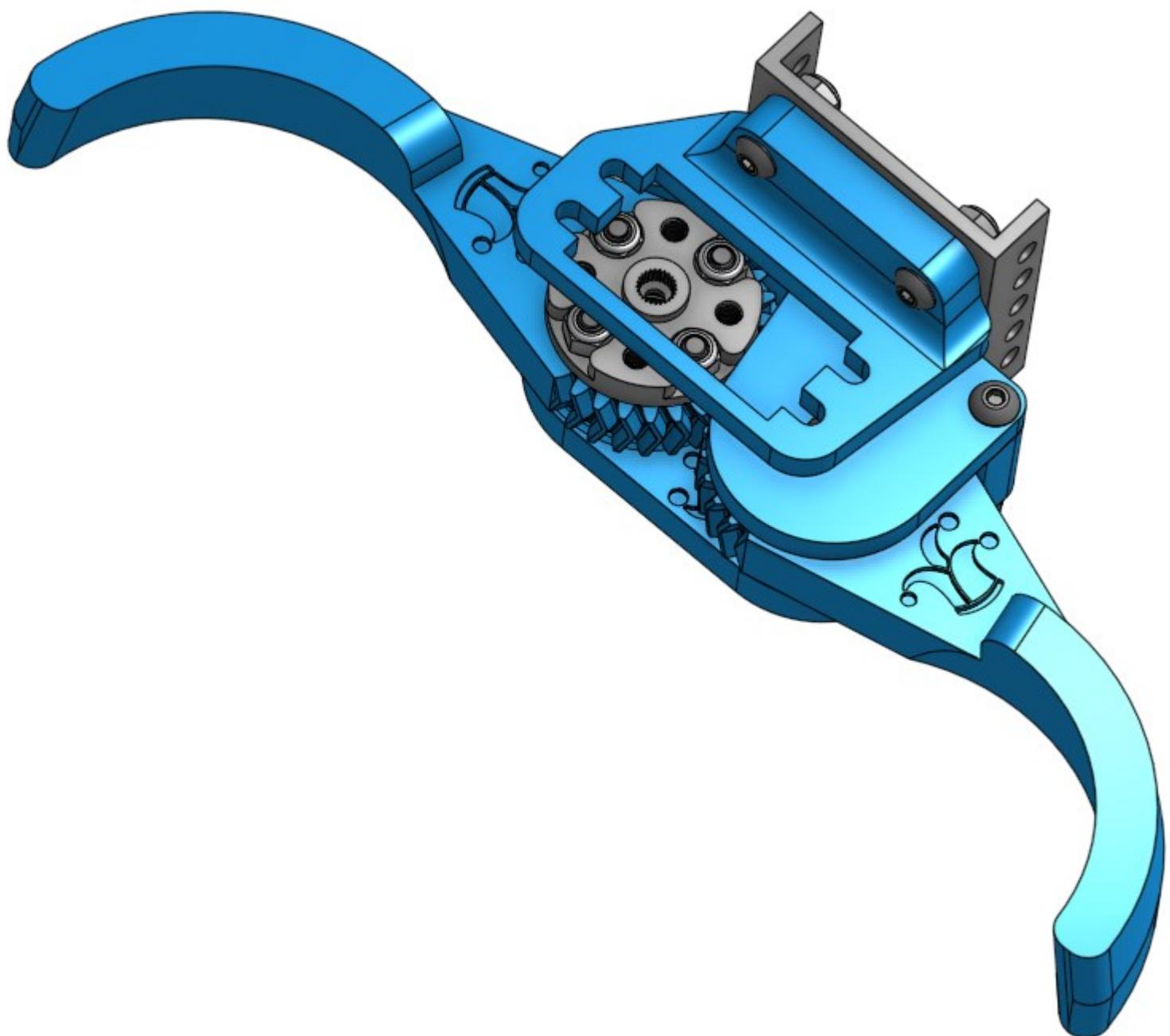


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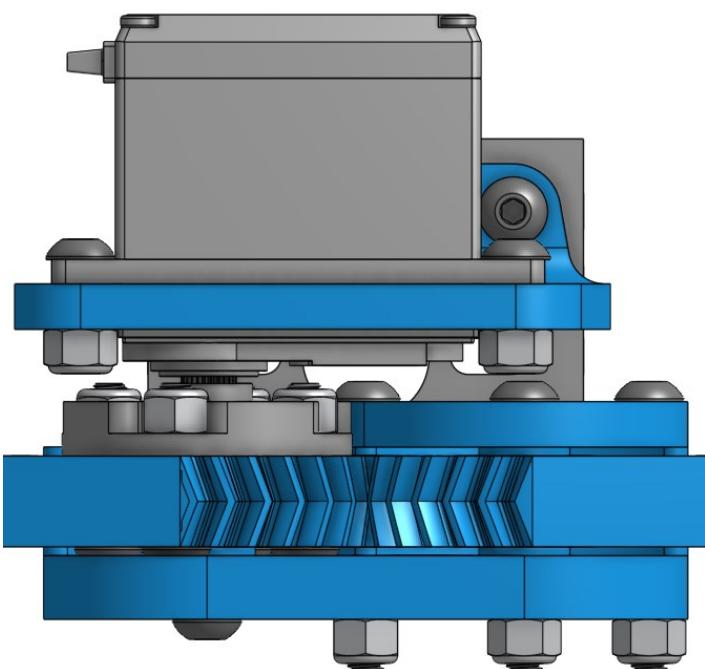
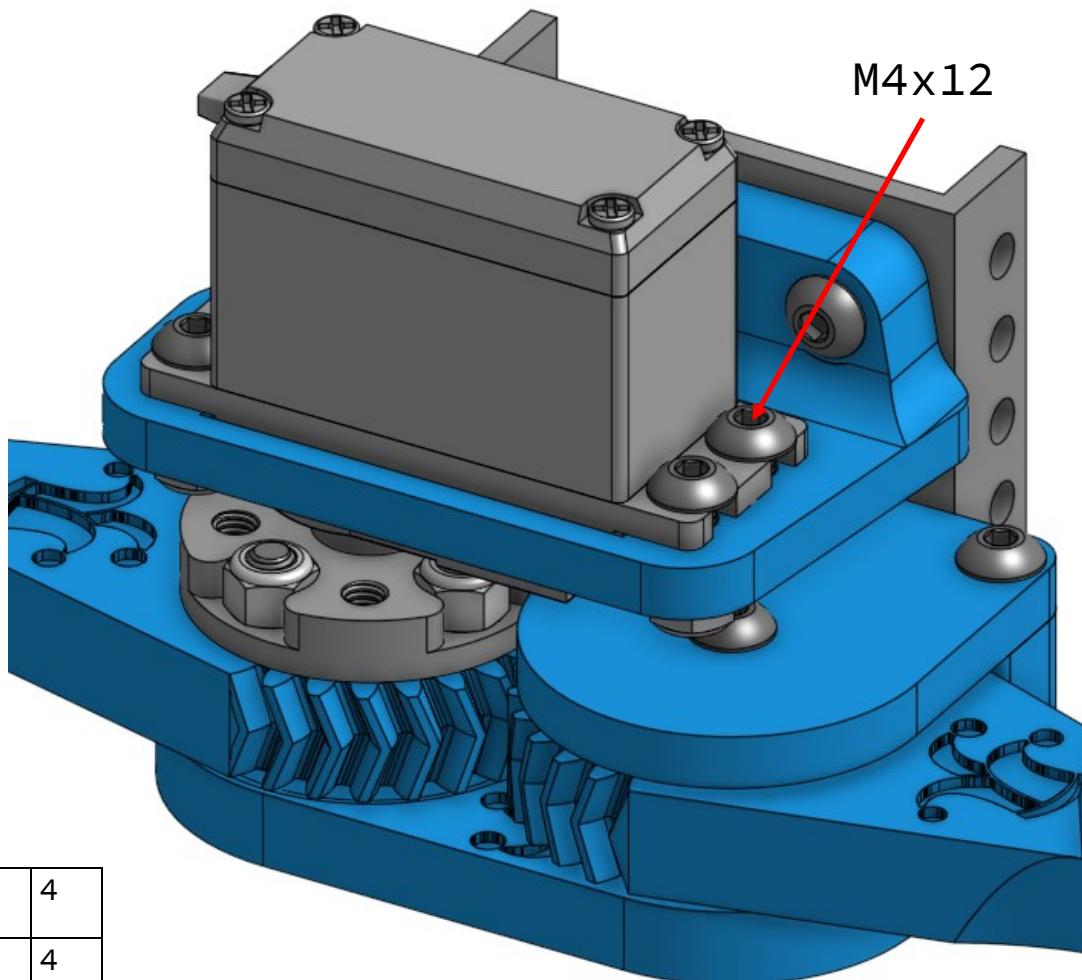
M4x16	2
M4 Nut	2



Open arms all the way
before installing servo.

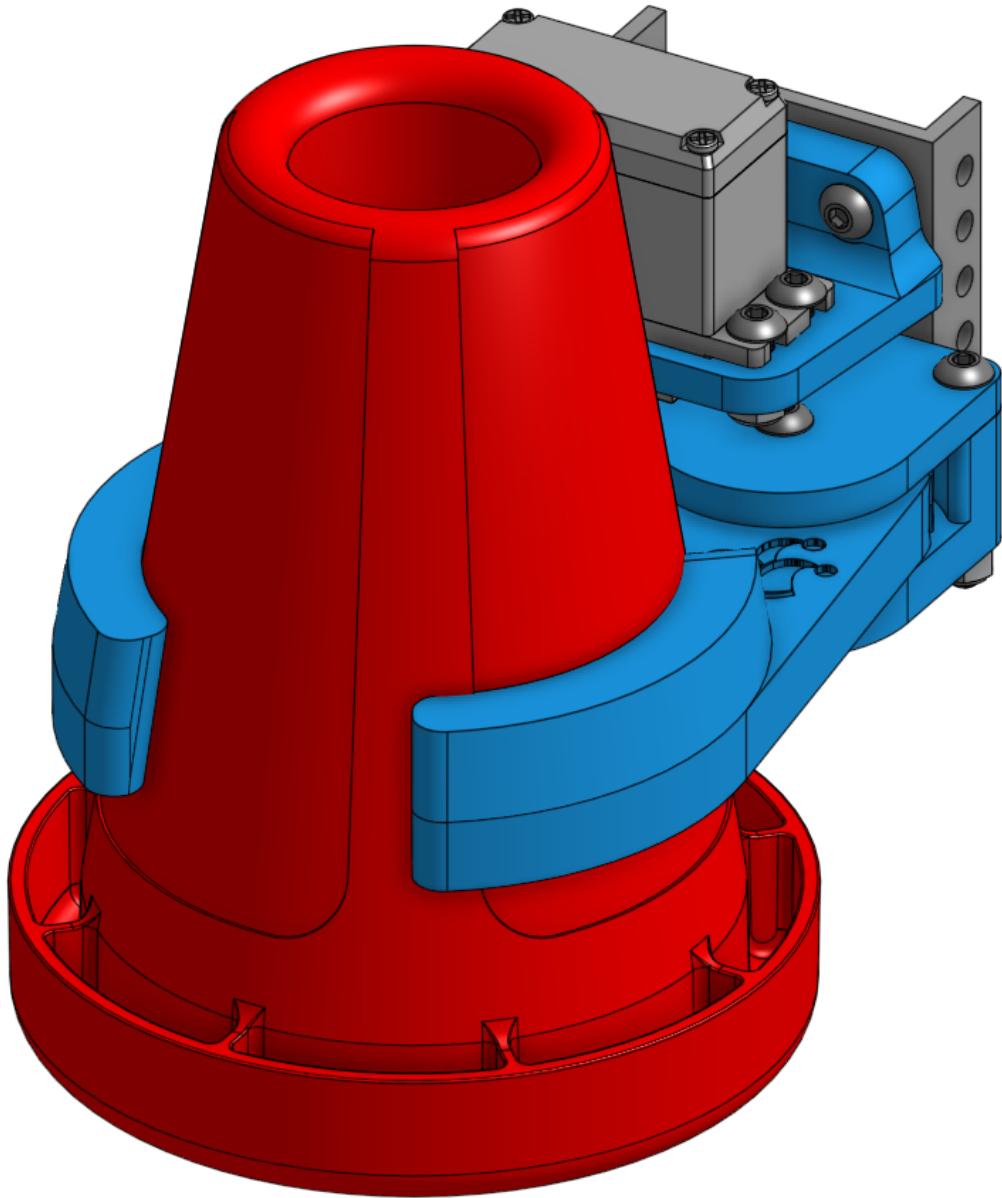


8



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.



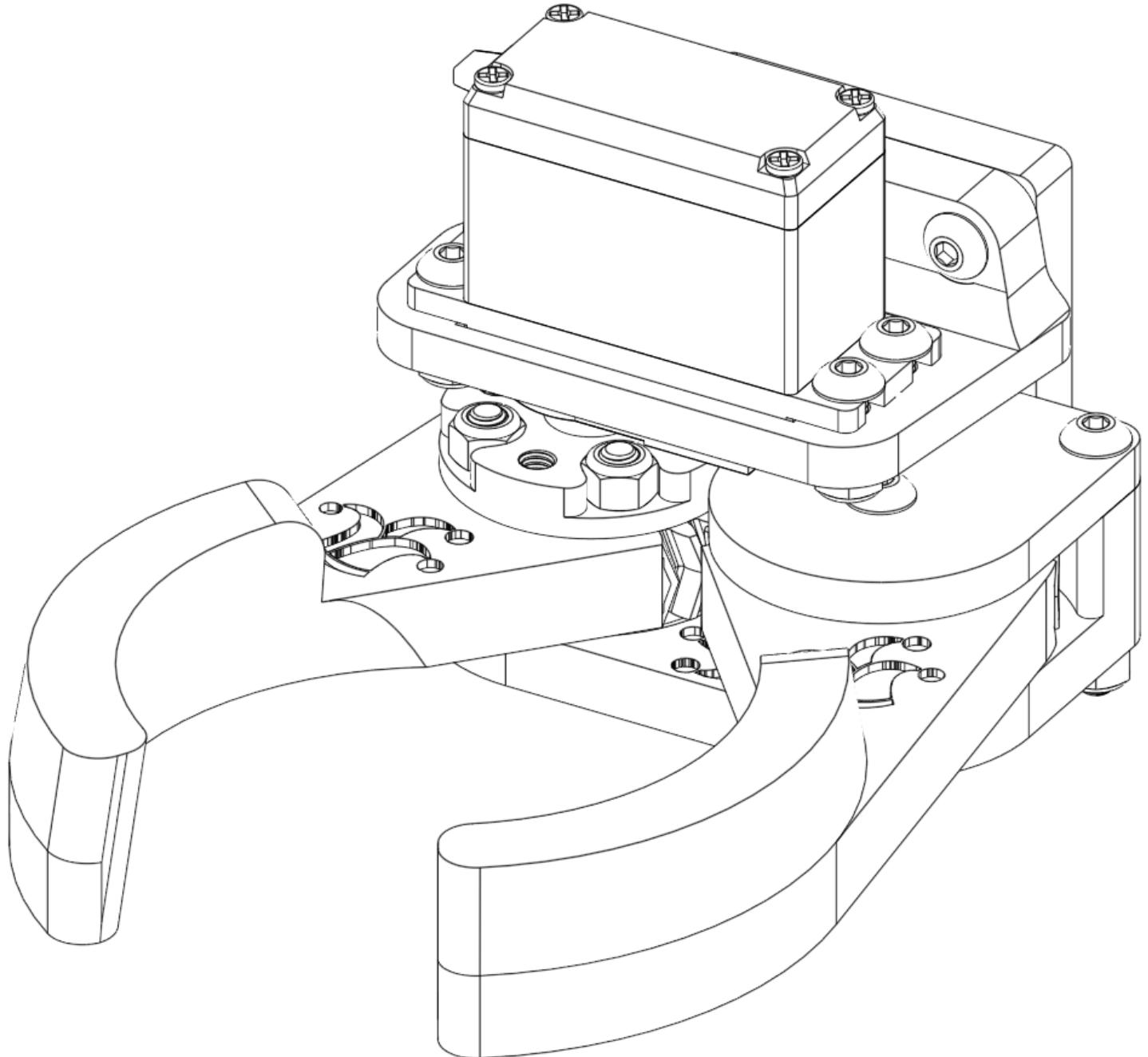
ADDITIONAL INFORMATION

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>

Viper Slide Mount



Use this design to mount a claw directly to a viper slide stack. This design requires longer screws in the bottom bracket of the final viper slide stage.

BILL OF MATERIALS

PART NAME	SKU	QUANTITY	CHECK
block mount		1	
idle arm		1	
servo arm		1	
top plate		1	
servo mount		1	
viper adapter		1	
M4x12	2802-0004-0012	9	
M4x16	2802-0004-0016	2	
M4x18	2802-0004-0018	4	
M4x30	2802-0004-0030	3	
M4 Nut	2812-0004-0007	18	
4mm ID Spacer, 24mm	1502-0006-0240	1	
25 Tooth Spline Servo Hub	1908-0025-0032	1	
Torque Servo	2000-0025-0002	1	
6mm Bearing	1611-0514-0006	2	
8mm Hex Bearing	1611-0514-4008	1	
Surgical tube/hot glue/ grippy material			

NOTES:

- This design will allow you to mount a claw directly to a set of viper slides. The screws on the bottom bracket of the final stage of the viper slide stack will need to be lengthened in order to attach the assemblies together.
- 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

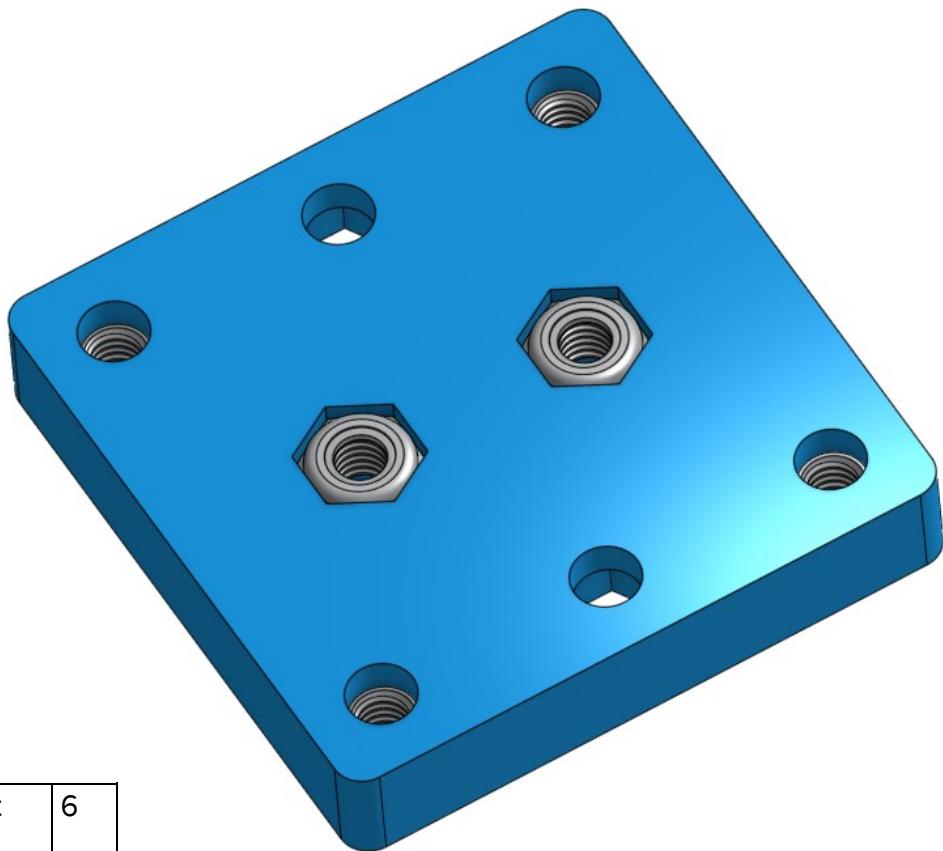
NOTE: Your printer or filament may vary. This is intended only as a starting point.

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

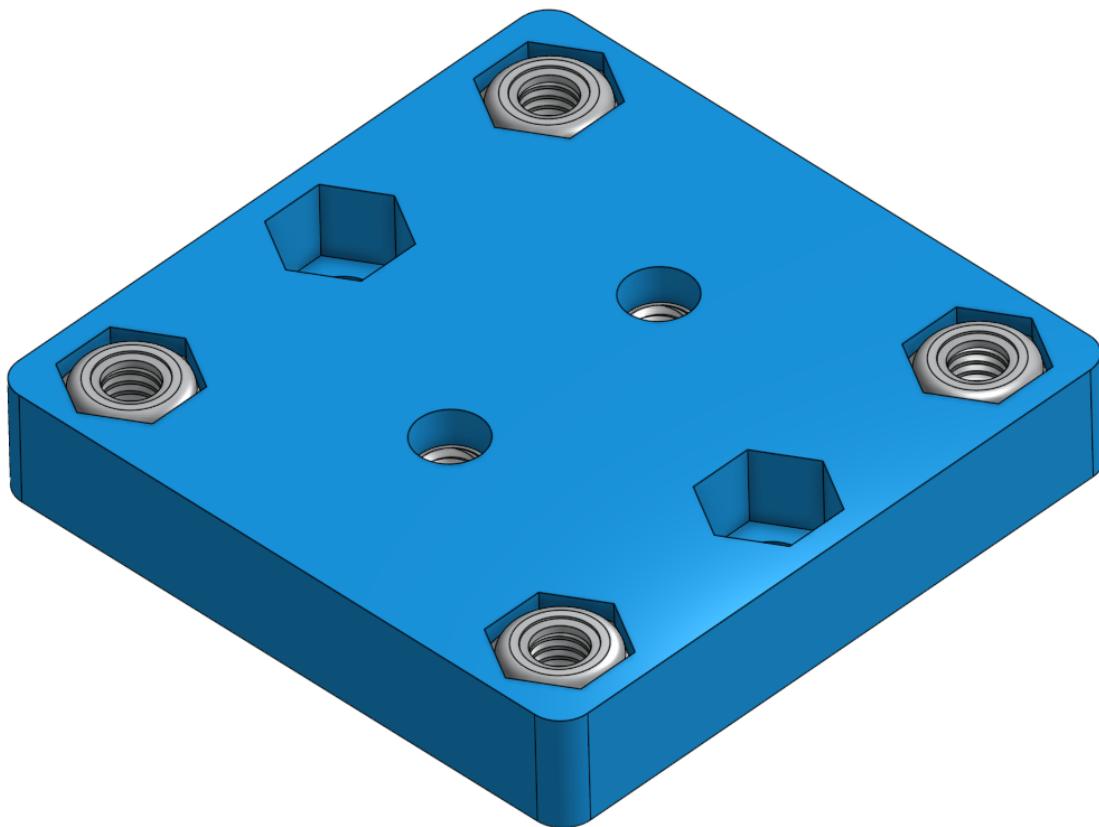
These settings are designed to create the strongest parts possible. They are not ordered towards creating the lightest parts possible. With some adjustment, the weight of this claw may be reduced by a few dozen grams at the expense of some strength.

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.

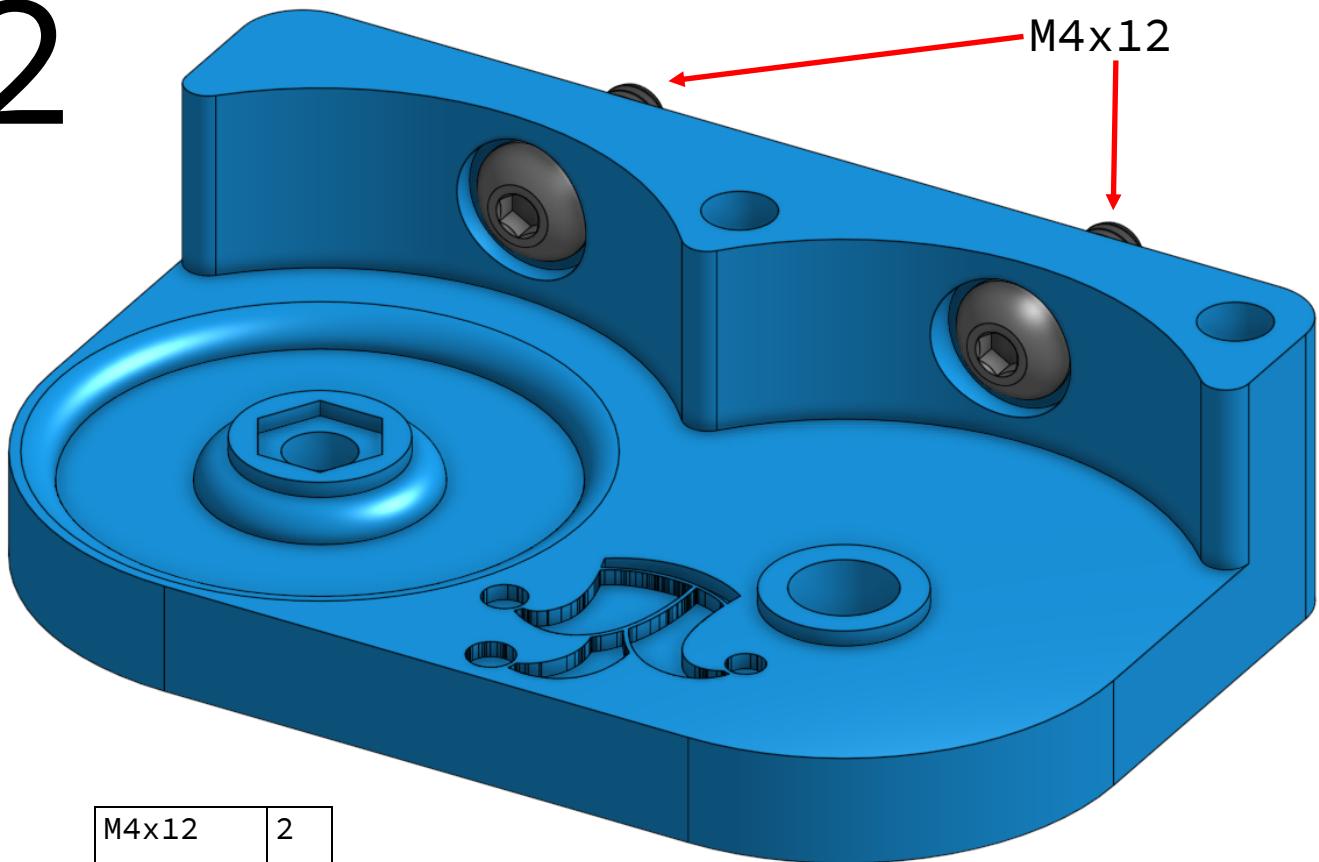
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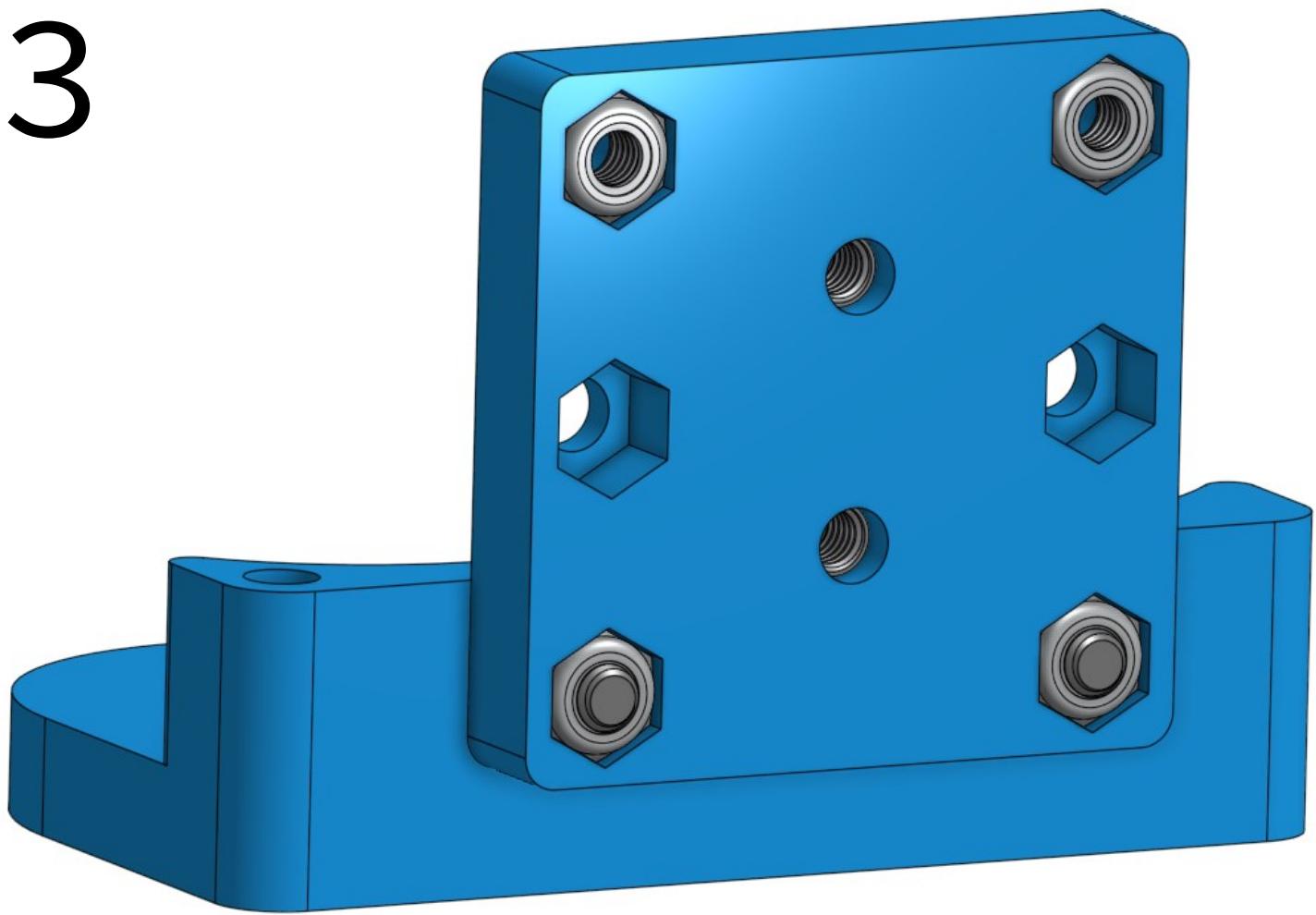
M4 Nut	6
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2

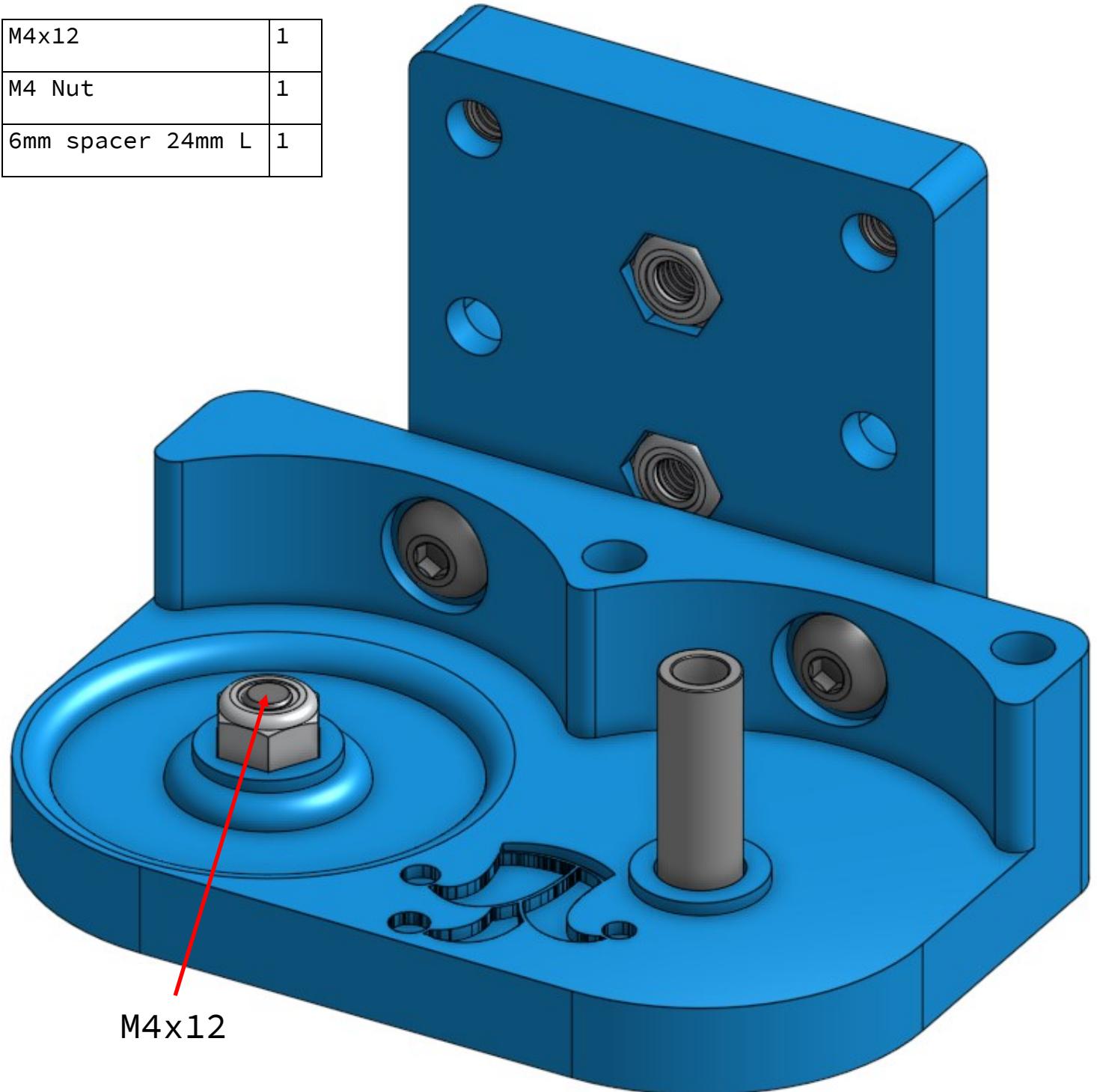


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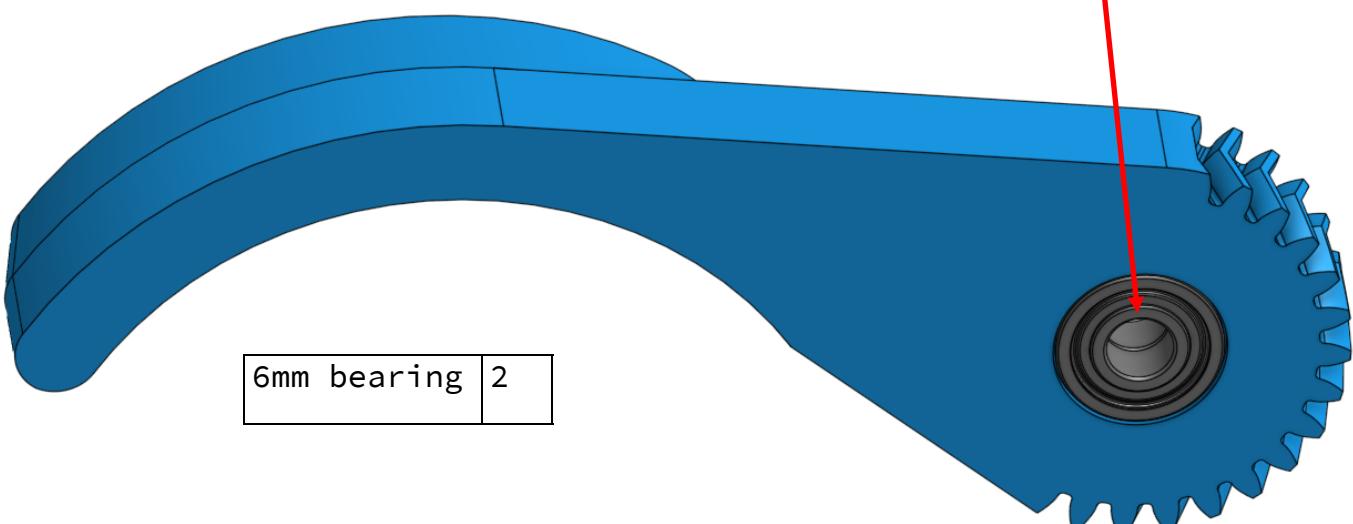
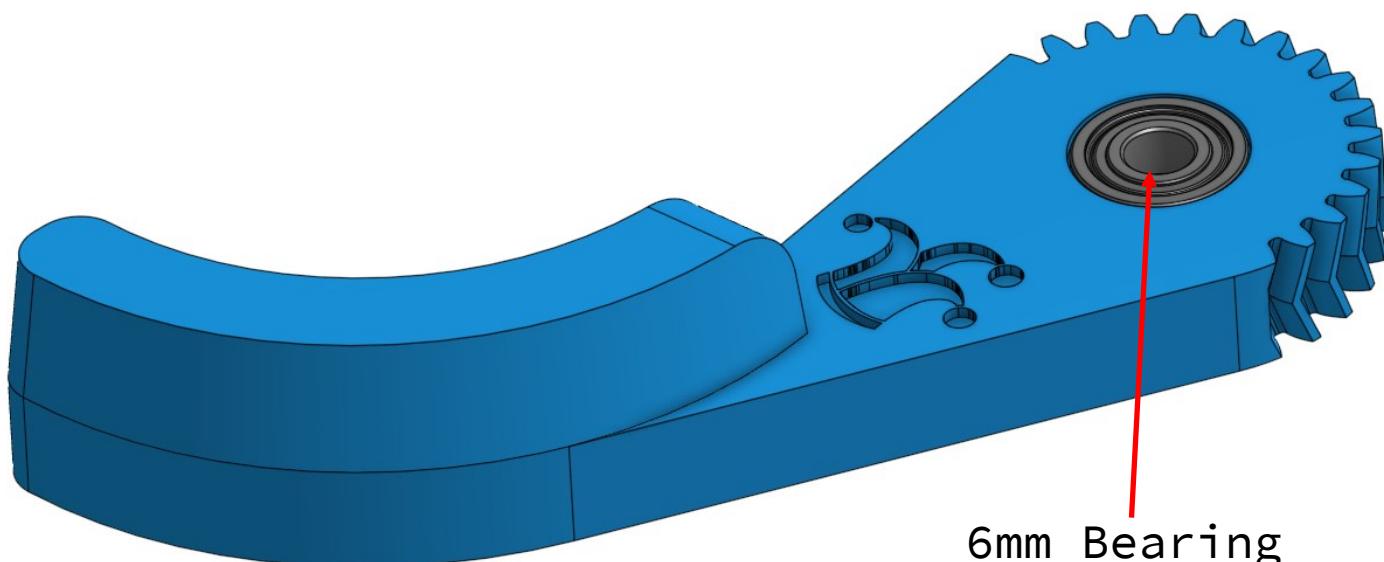
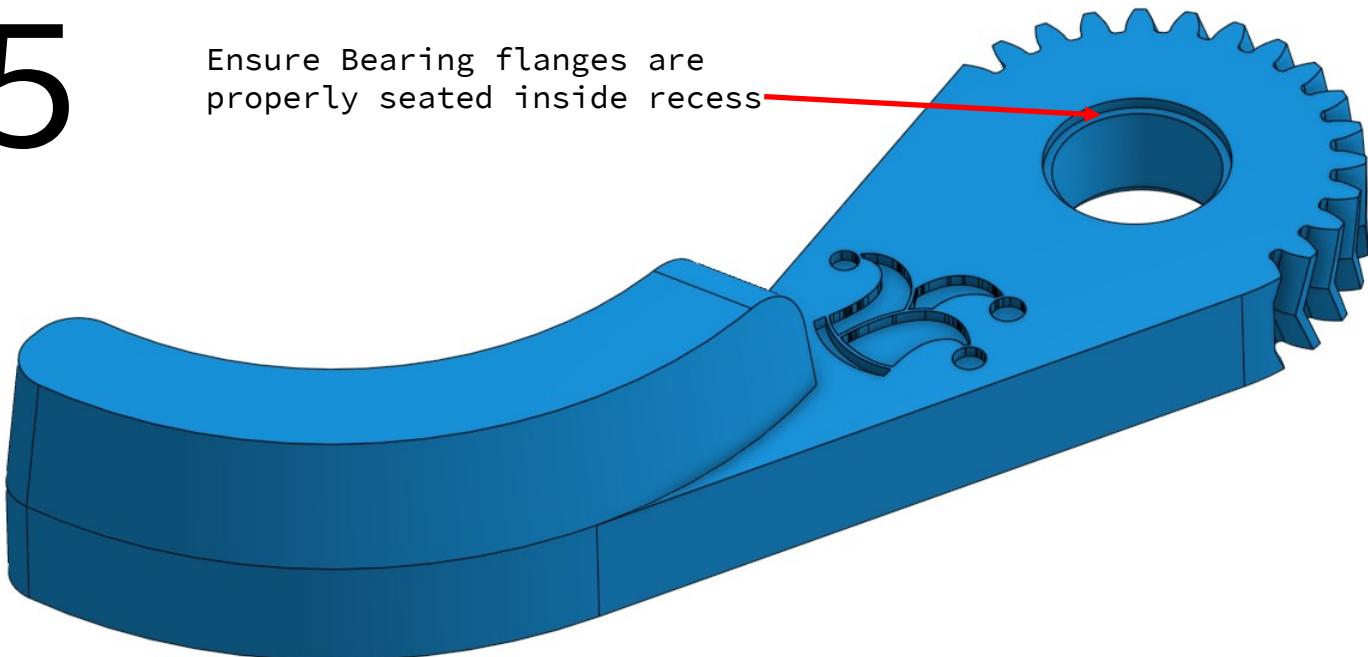
4

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

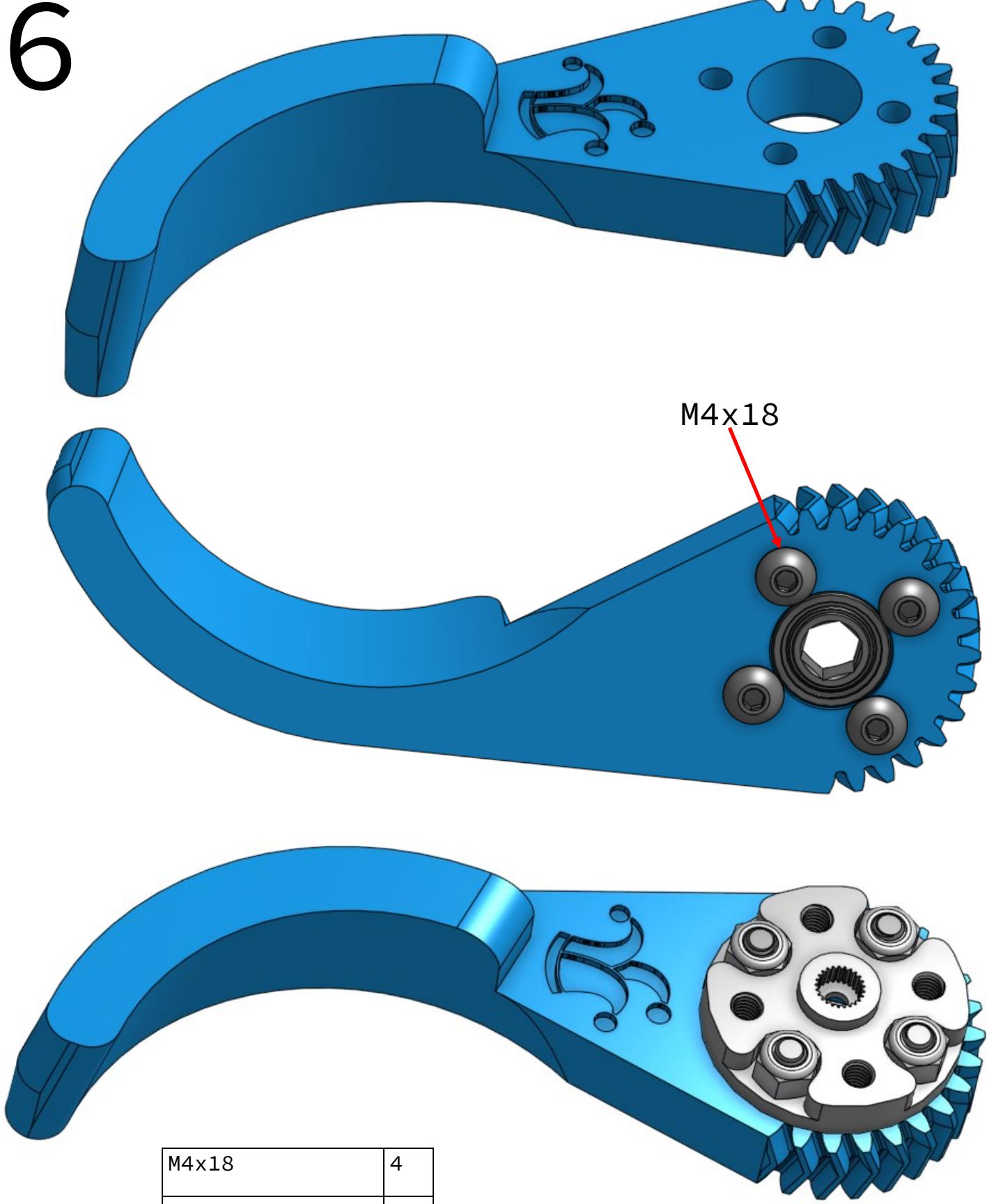


5

Ensure Bearing flanges are
properly seated inside recess



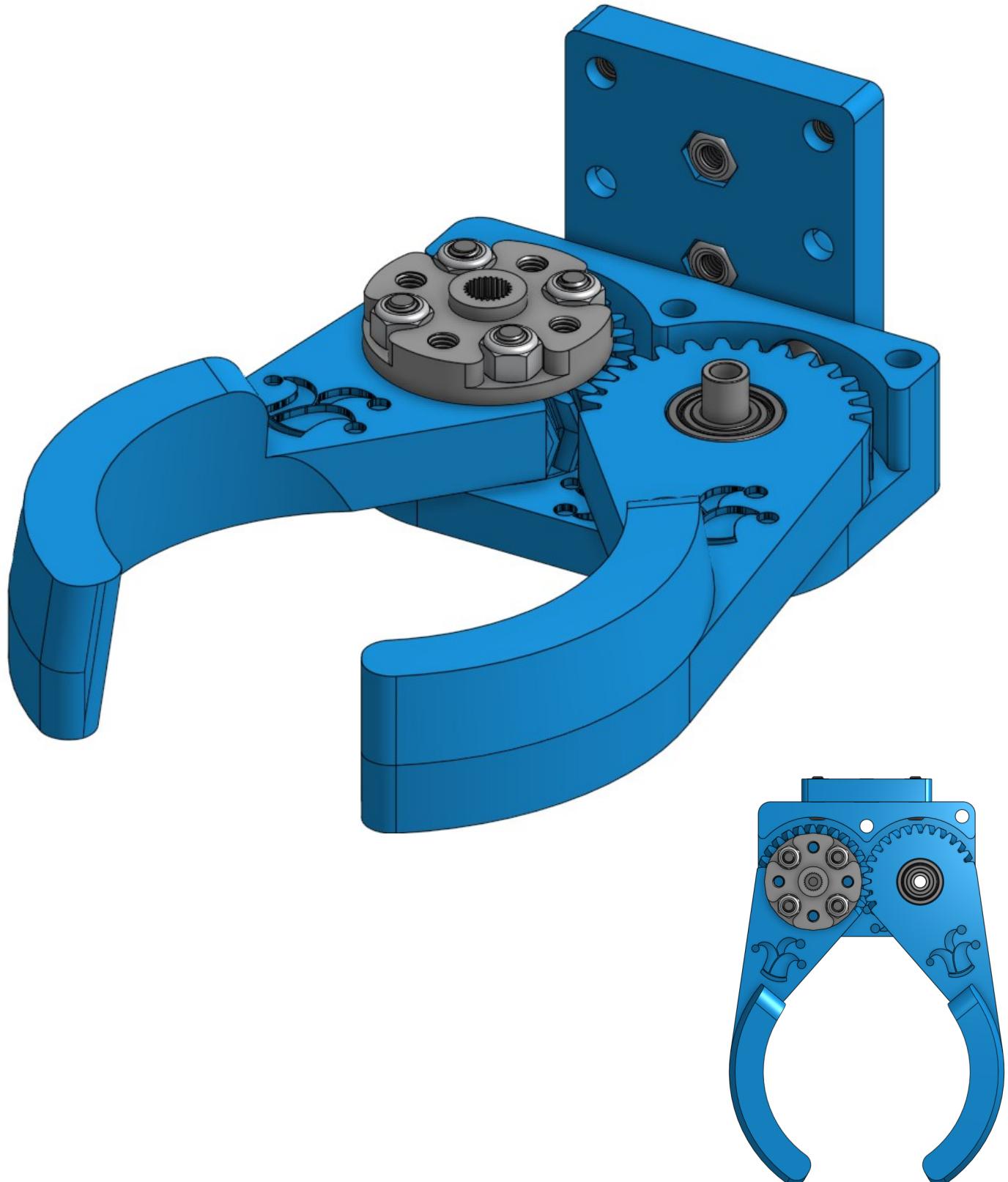
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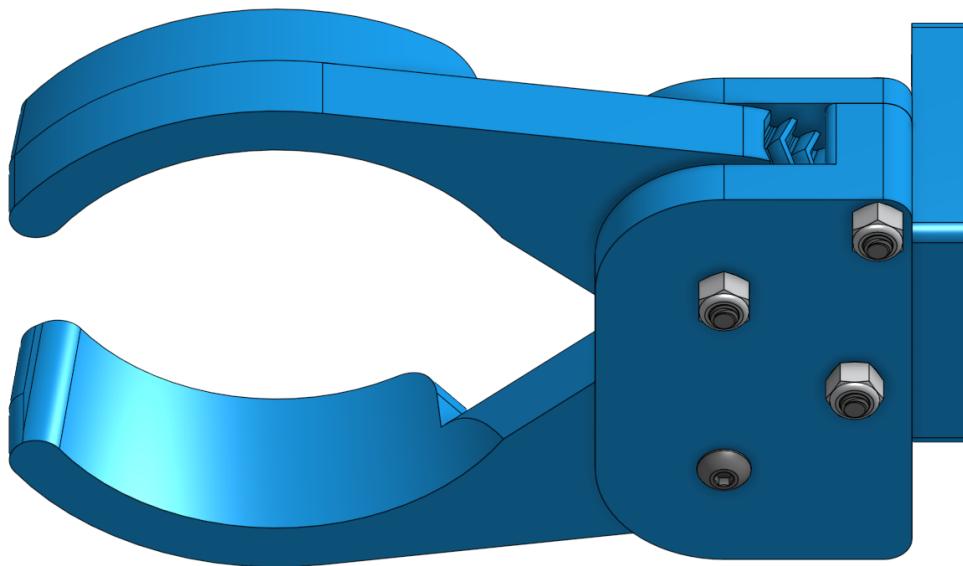
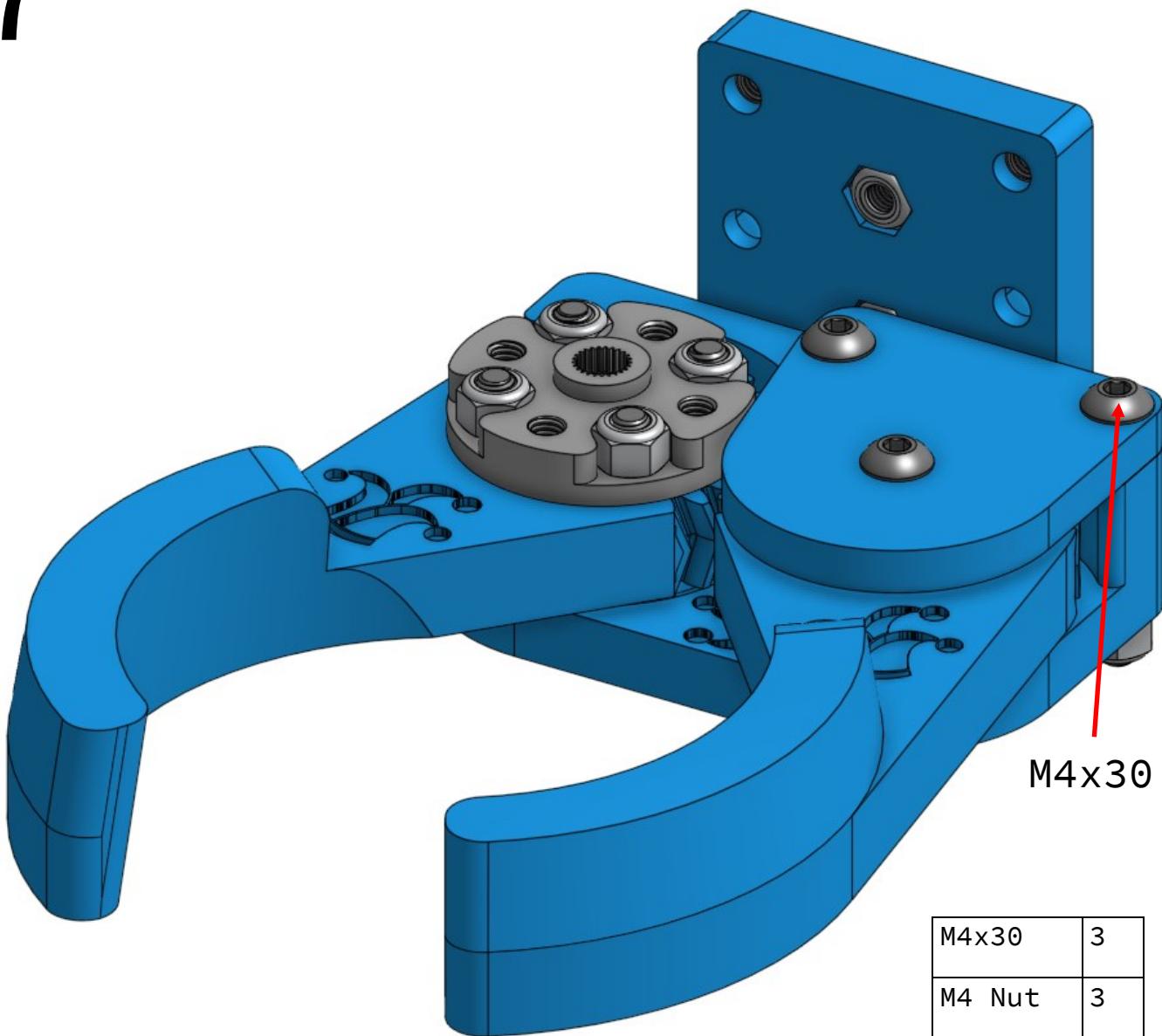
M4x18	4
M4 Nut	4
8mm hex bearing	1

7

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

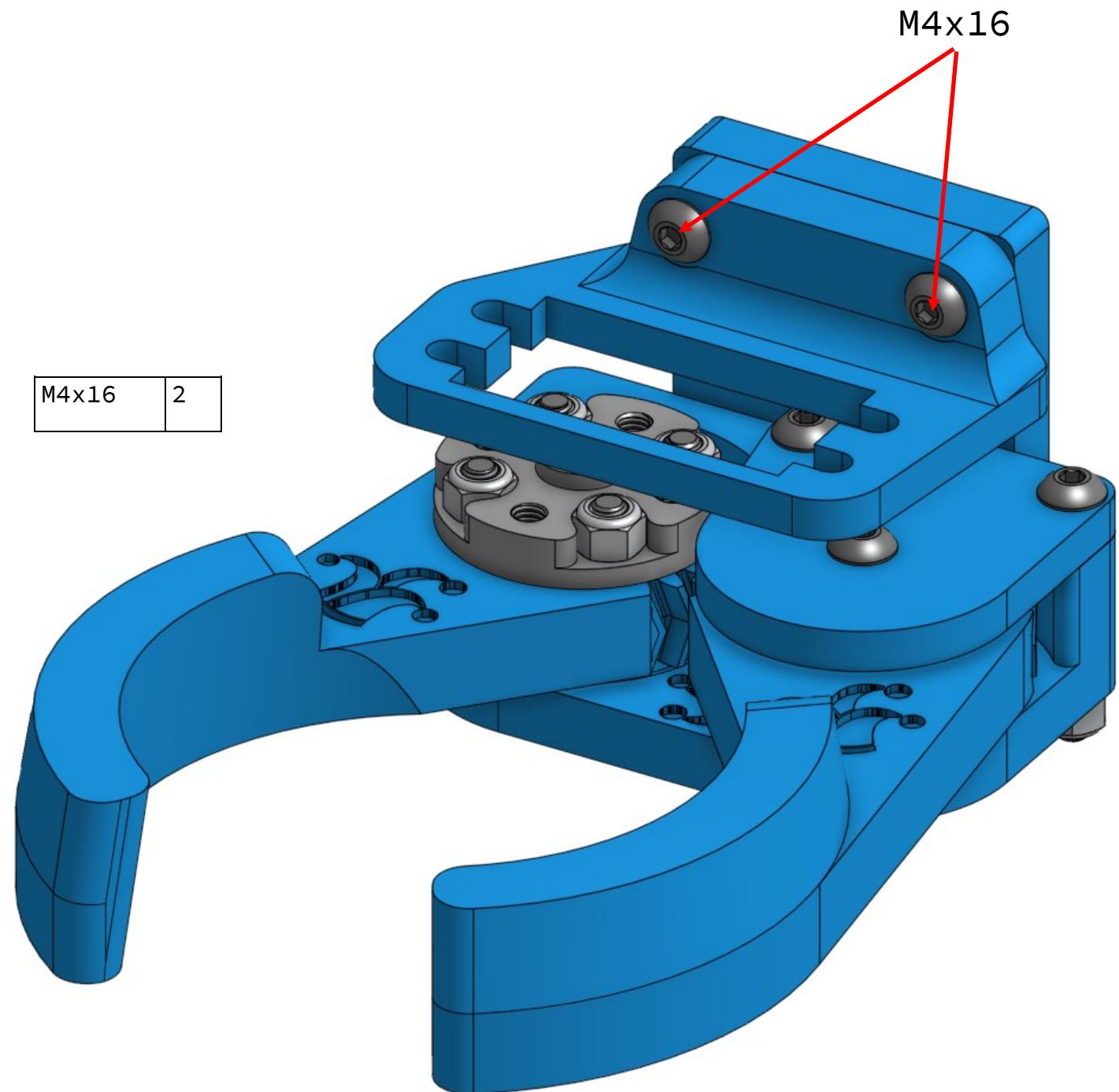


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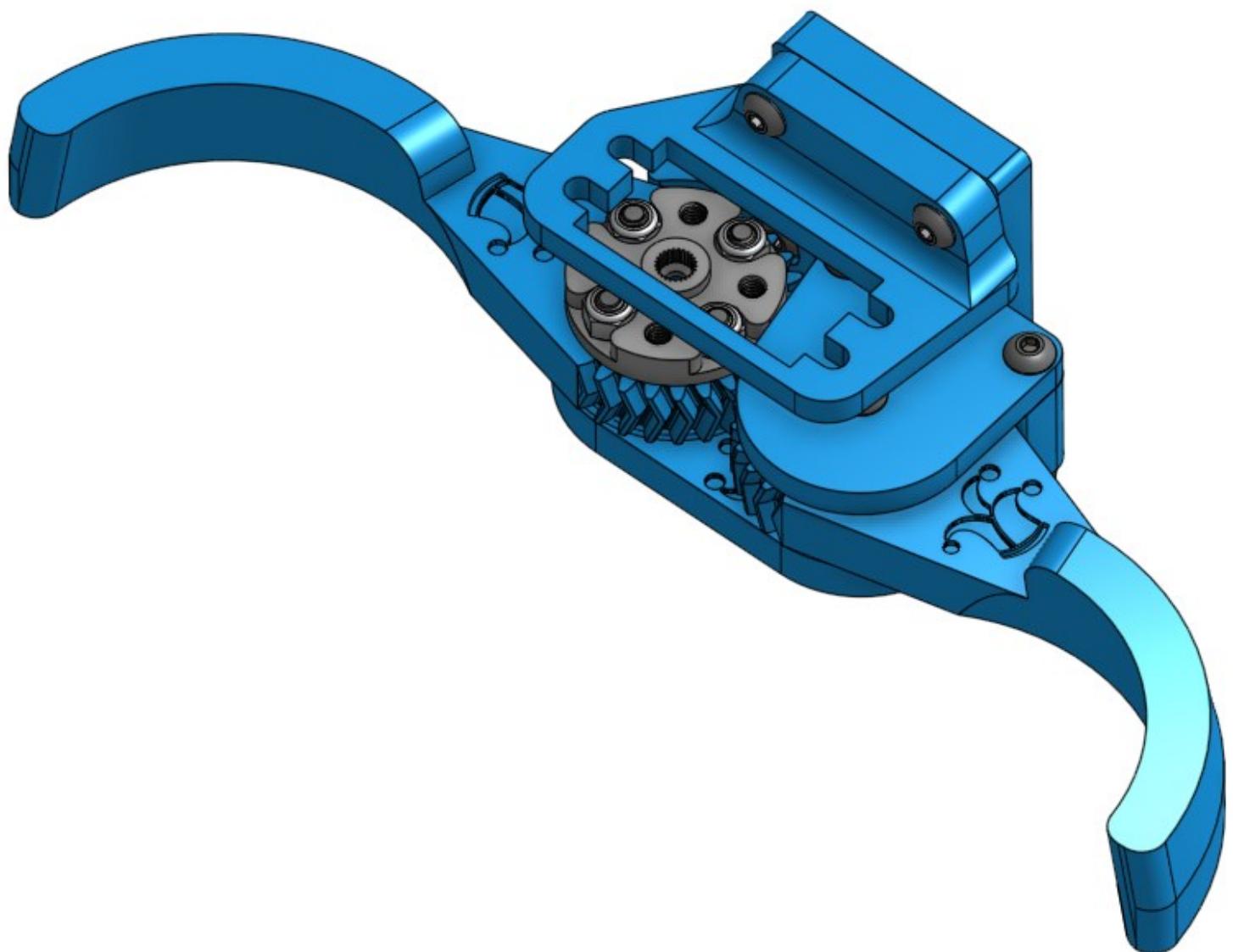


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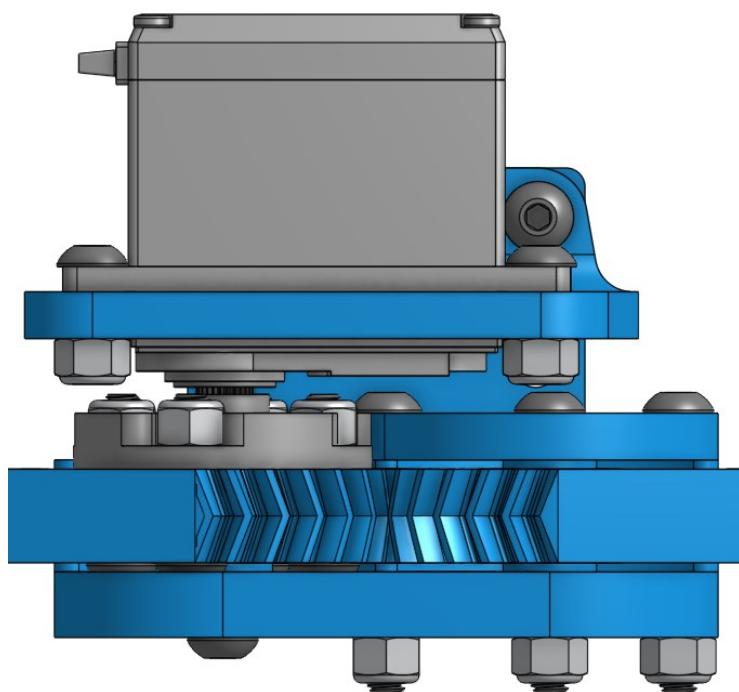
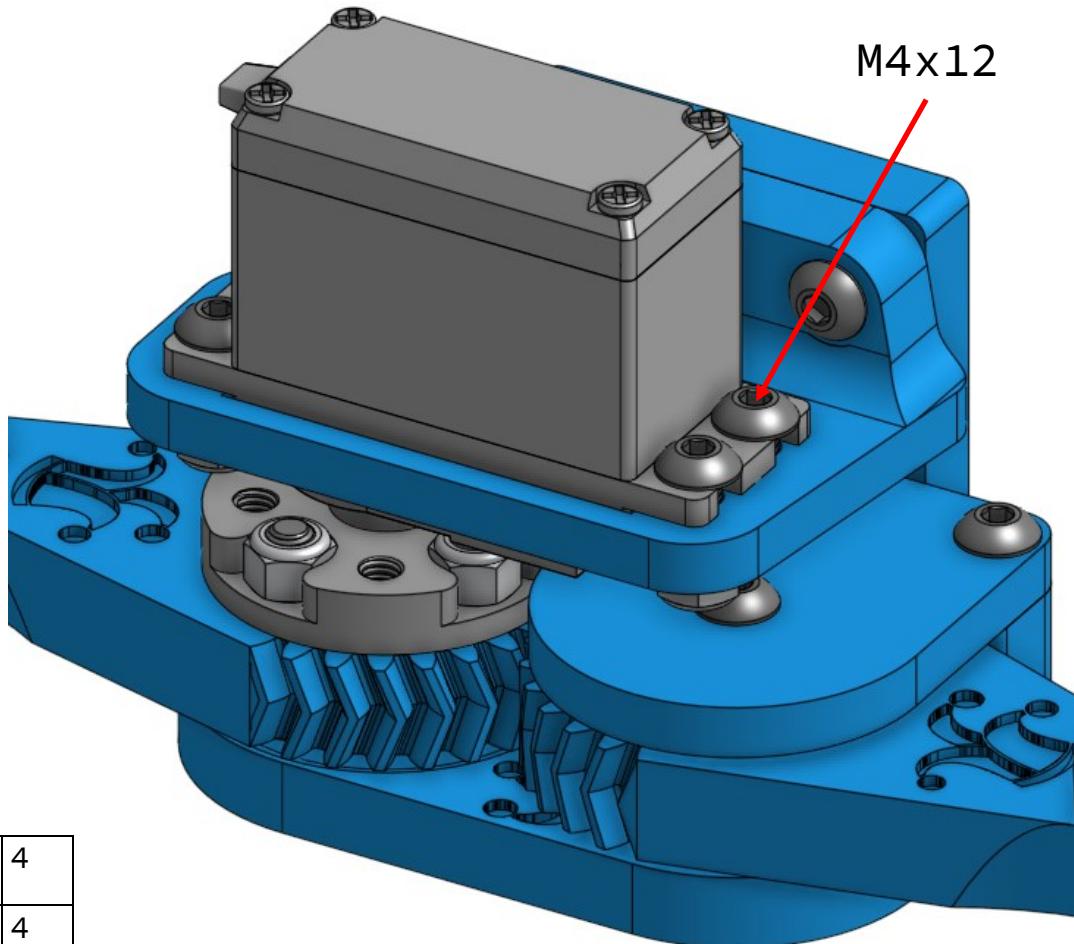
M4x16 2



Open arms all the way
before installing servo.

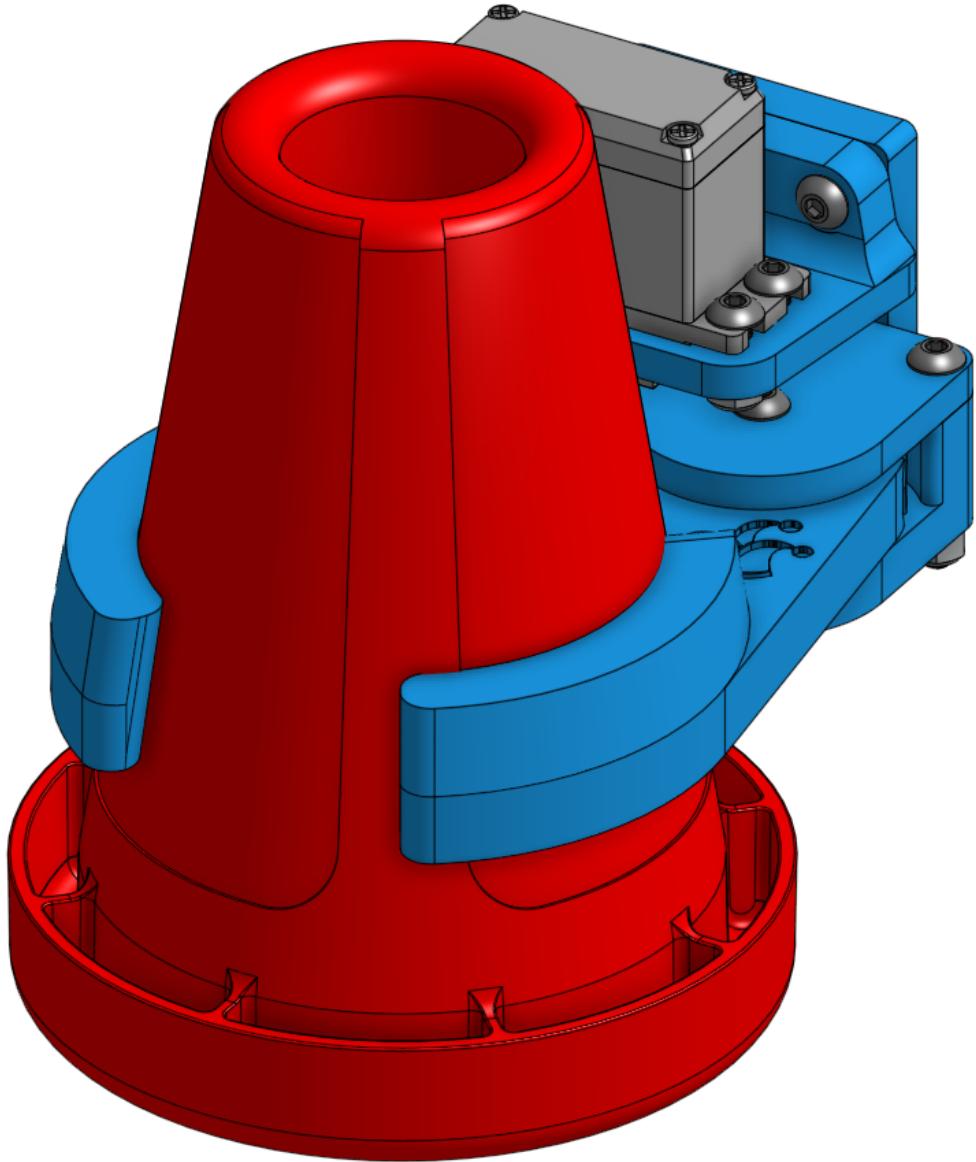


9



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.



ADDITIONAL INFORMATION

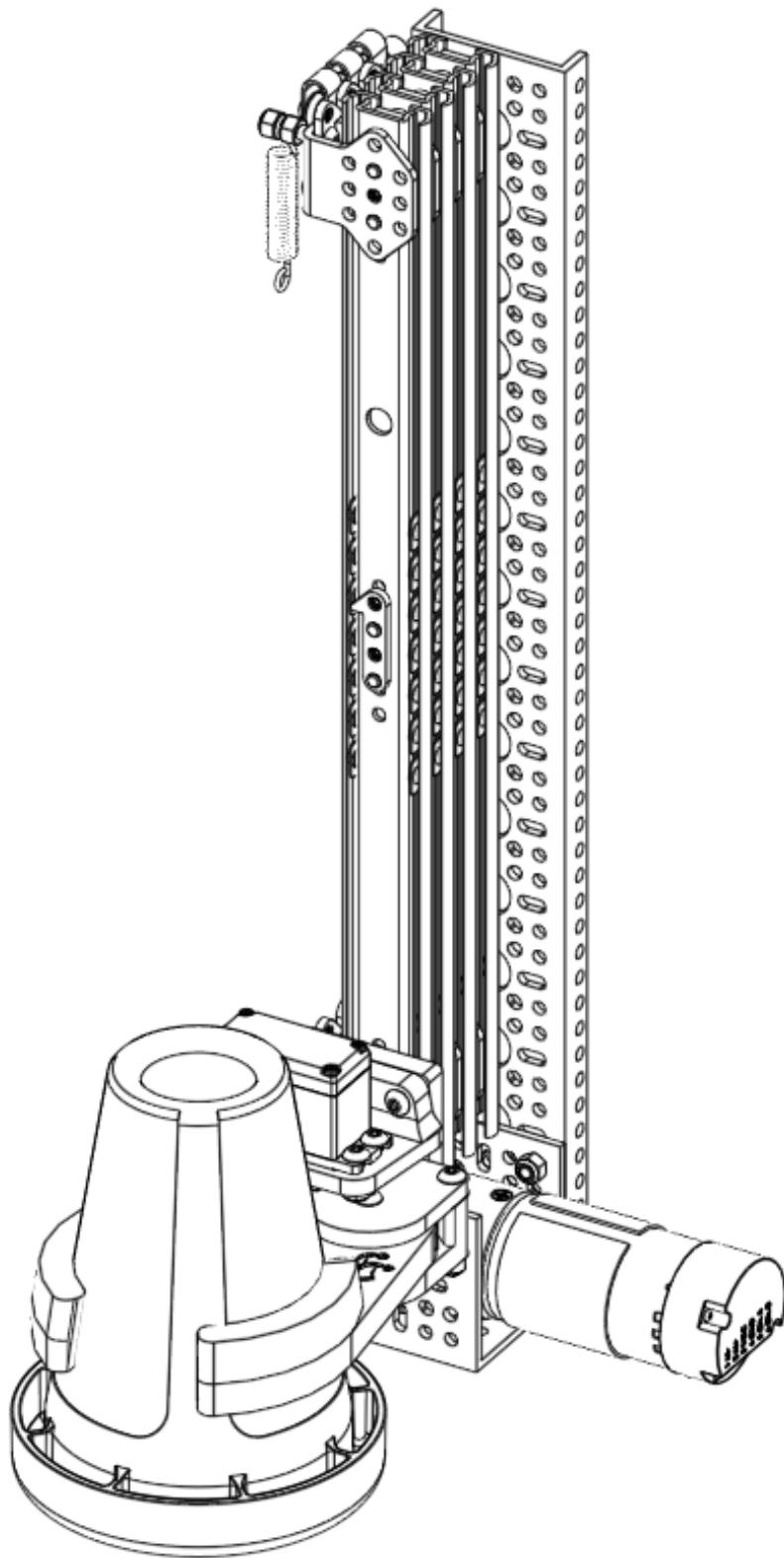
CAD: <https://cad.onshape.com/documents/129dc57b75a629234258d945/w/393048bd49f90455ff9c0a22/e/27d7fd42ed9d4c0cc4e530dd>

CONTACT: G-Force#5900 on Discord

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

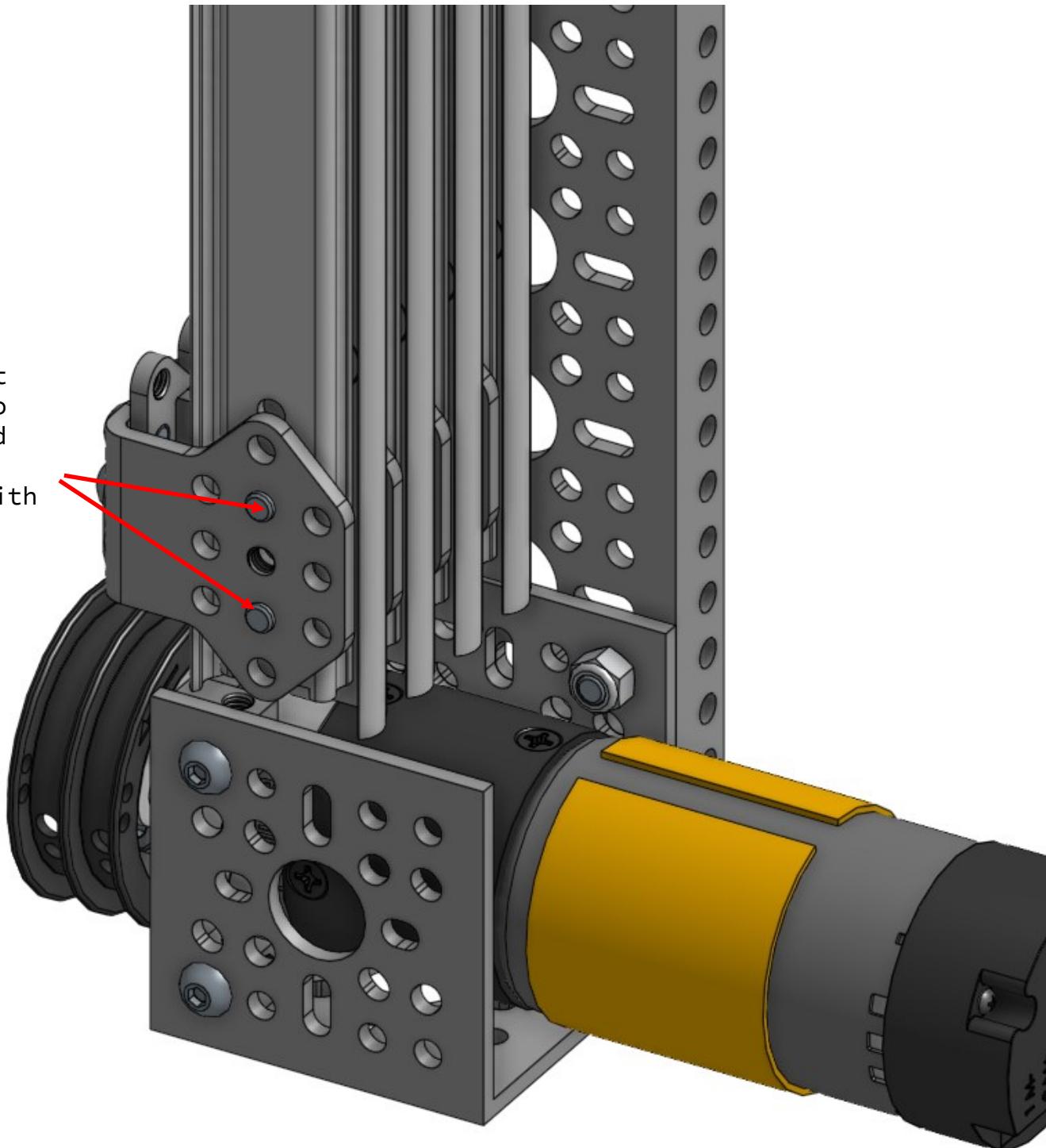
IMPORTANT: Mounting information on next page

MOUNTING TO VIPER SLIDES



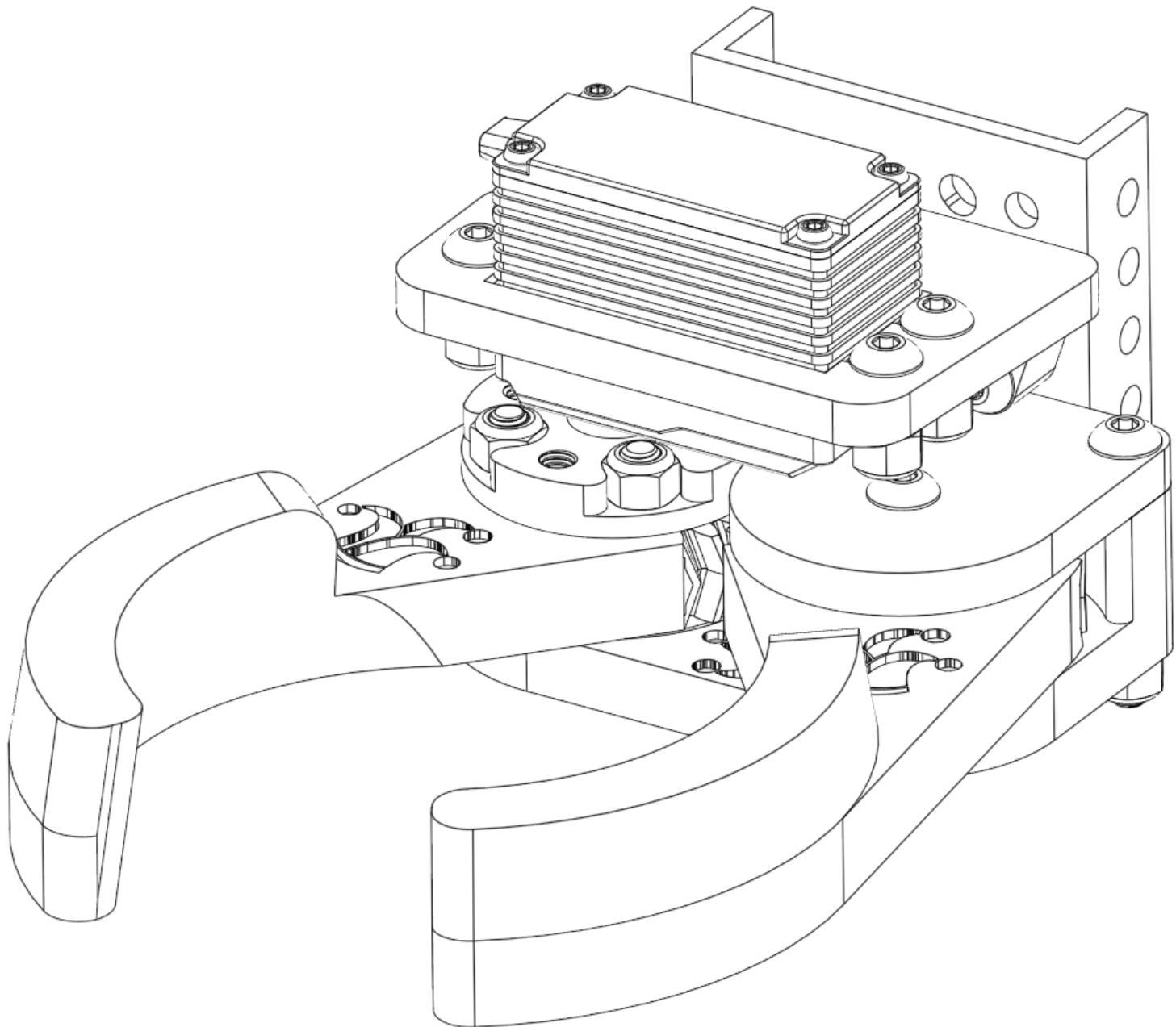
Use these instructions to mount your claw directly to a viper slide stack.
Works with either standard edition or Axon edition.

Drill out
these two
holes and
replace
screws with
M4x12mm



For best results, the two holes specified on the steel pulley bracket should be drilled out. This will prevent cross threading and misalignment when attaching the claw to the slides. Drill the holes out to 4mm to allow an M4 bolt to freely pass through.

Axon 32x16 Mounting Pattern



Use this design to mount a claw to any goBILDA U channel, low side U channel, grid plate, or anything else with a 32x16 hole pattern. This claw uses an Axon Mini/Mini+ instead of a standard size servo.

BILL OF MATERIALS

PART NAME	SKU	QUANTITY	CHECK
block mount		1	
idle arm		1	
servo arm		1	
top plate		1	
Axon Mini servo mount		1	
M4x12	2802-0004-0012	7	
M4x16	2802-0004-0016	2	
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	
Axon Mini/Mini+ Servo		1	
6mm Bearing	1611-0514-0006	2	
8mm Hex Bearing	1611-0514-4008	1	
Surgical tube/hot glue/ grippy material			

NOTES:

- This design will allow you to mount a claw to anything with a 32x32mm hole pattern. This includes, but is not limited to, any goBILDA U channel, low side U channel, or grid plate as well as custom parts.
- 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

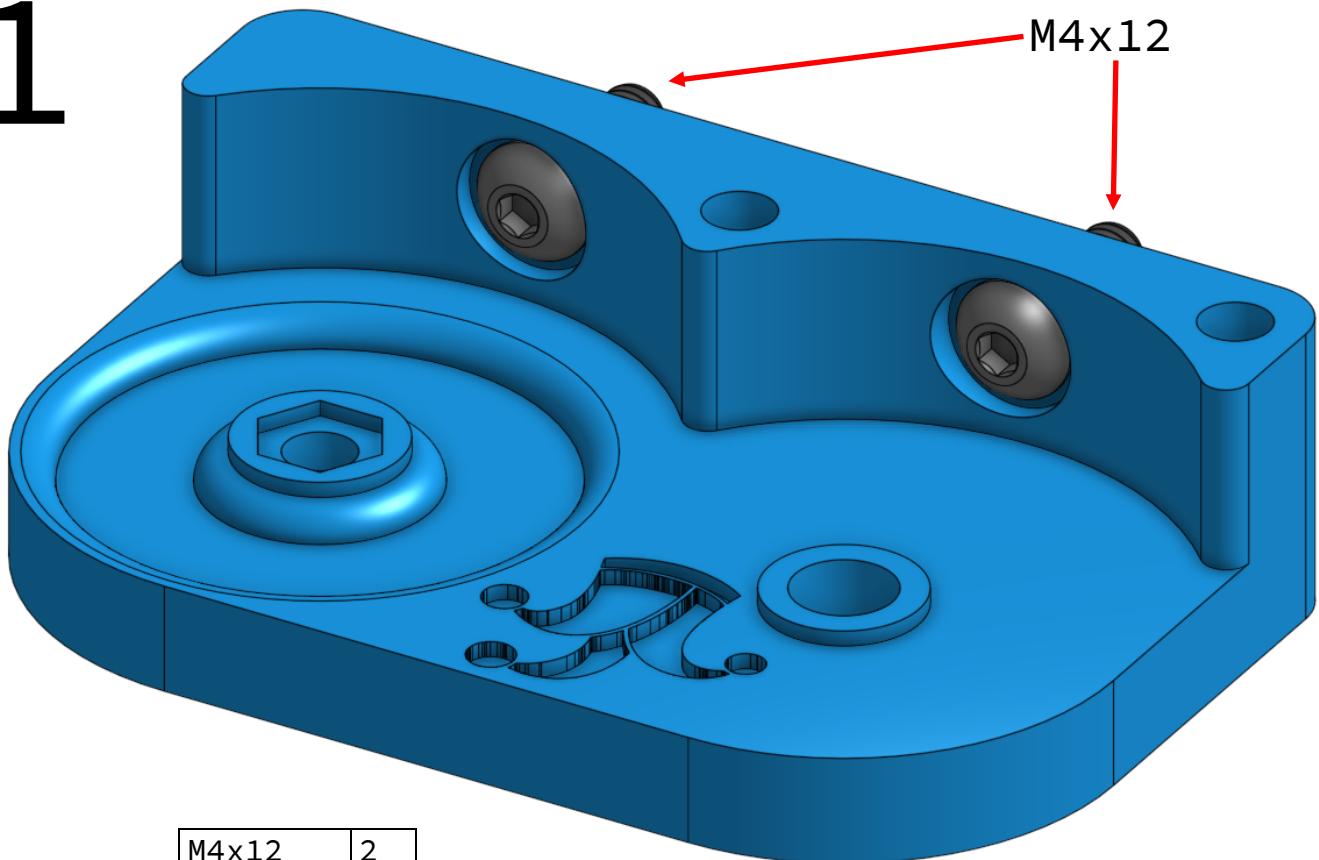
NOTE: Your printer or filament may vary. This is intended only as a starting point.

PART NAME	INFILL	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
Axon Mini servo mount	100	2	4
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
Axon Mini servo mount	100	2	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.

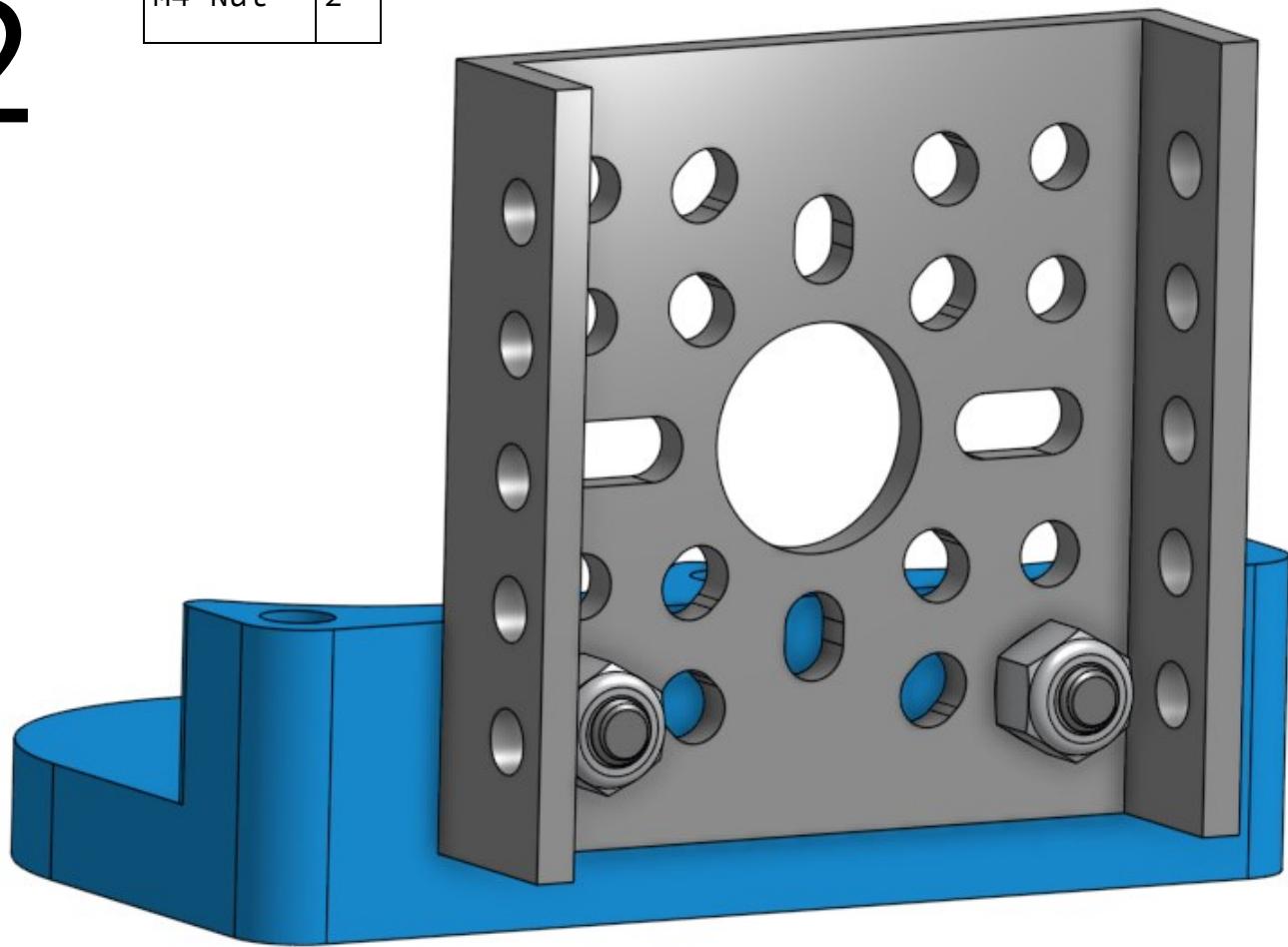
NOTE: With the goal of creating the most resilient claw possible, we printed the claws in Overture TPU with a 0.6mm nozzle at 0.3mm layers with 2 walls and 15% infill. These claws were flexible enough to withstand a full speed collision with the field wall, but were too soft to grip the cone effectively.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

1



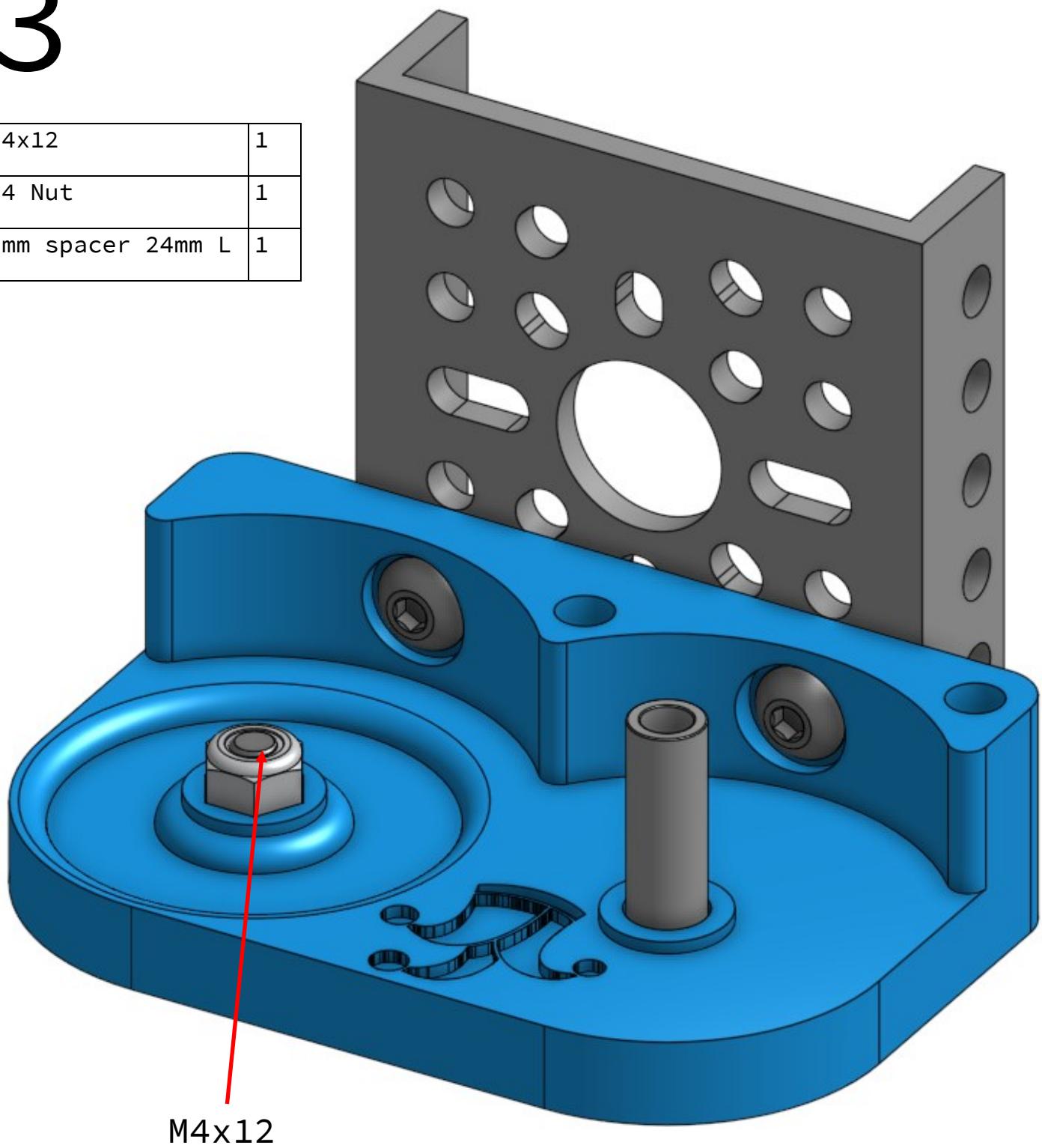
M4x12	2
M4 Nut	2

2



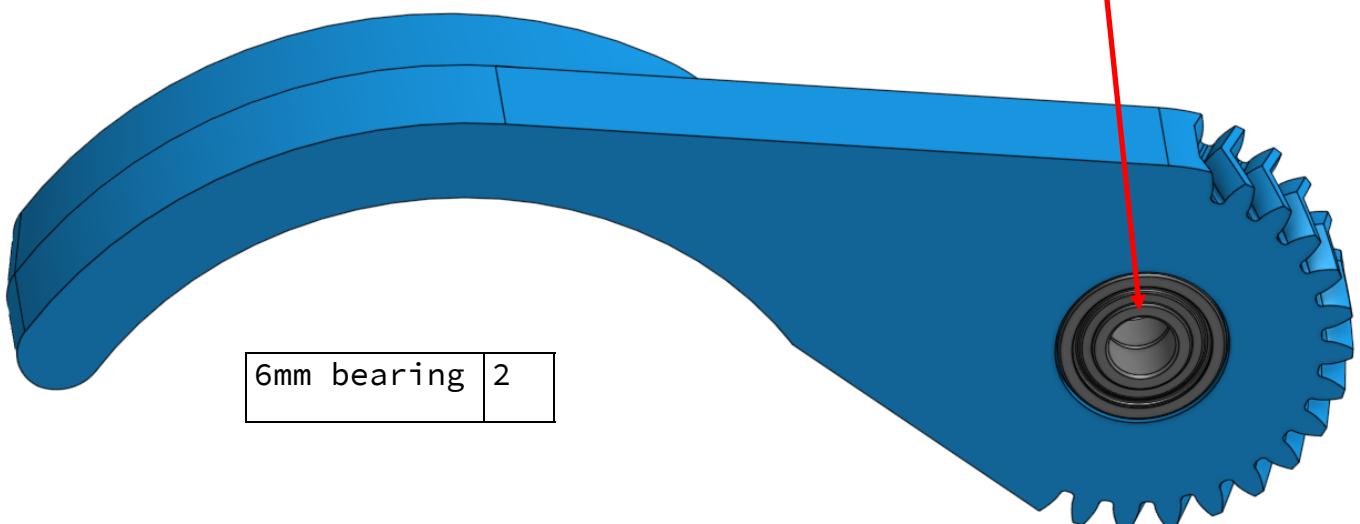
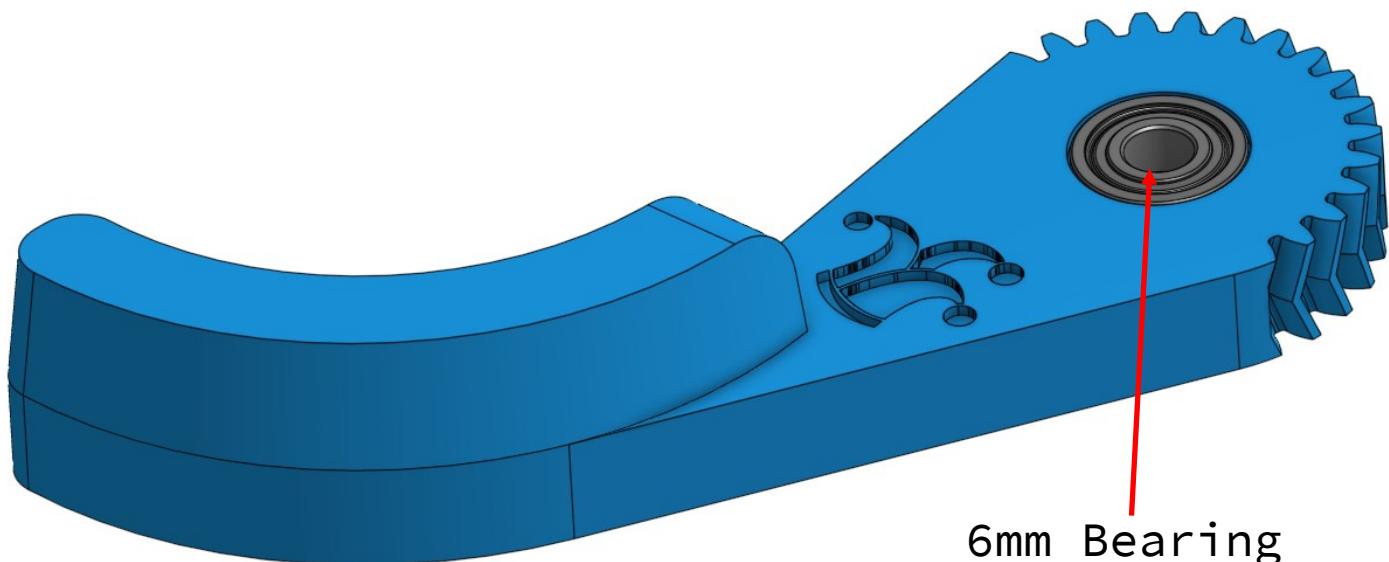
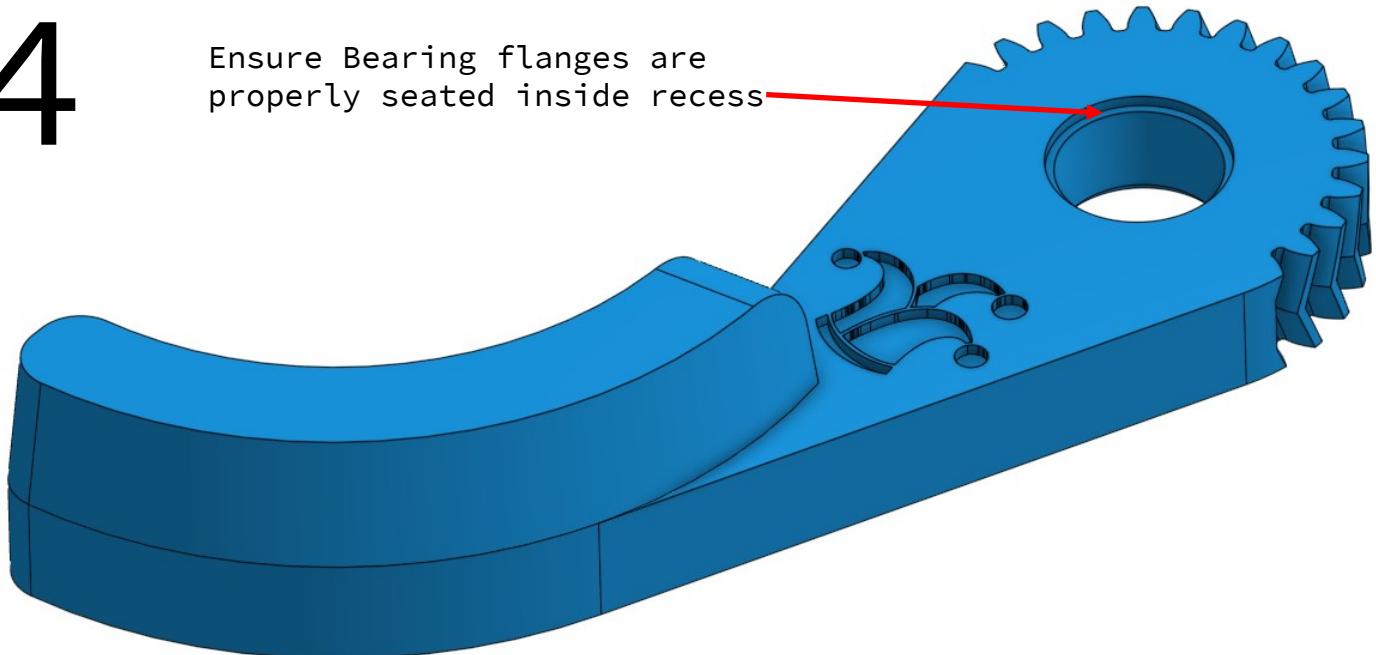
3

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

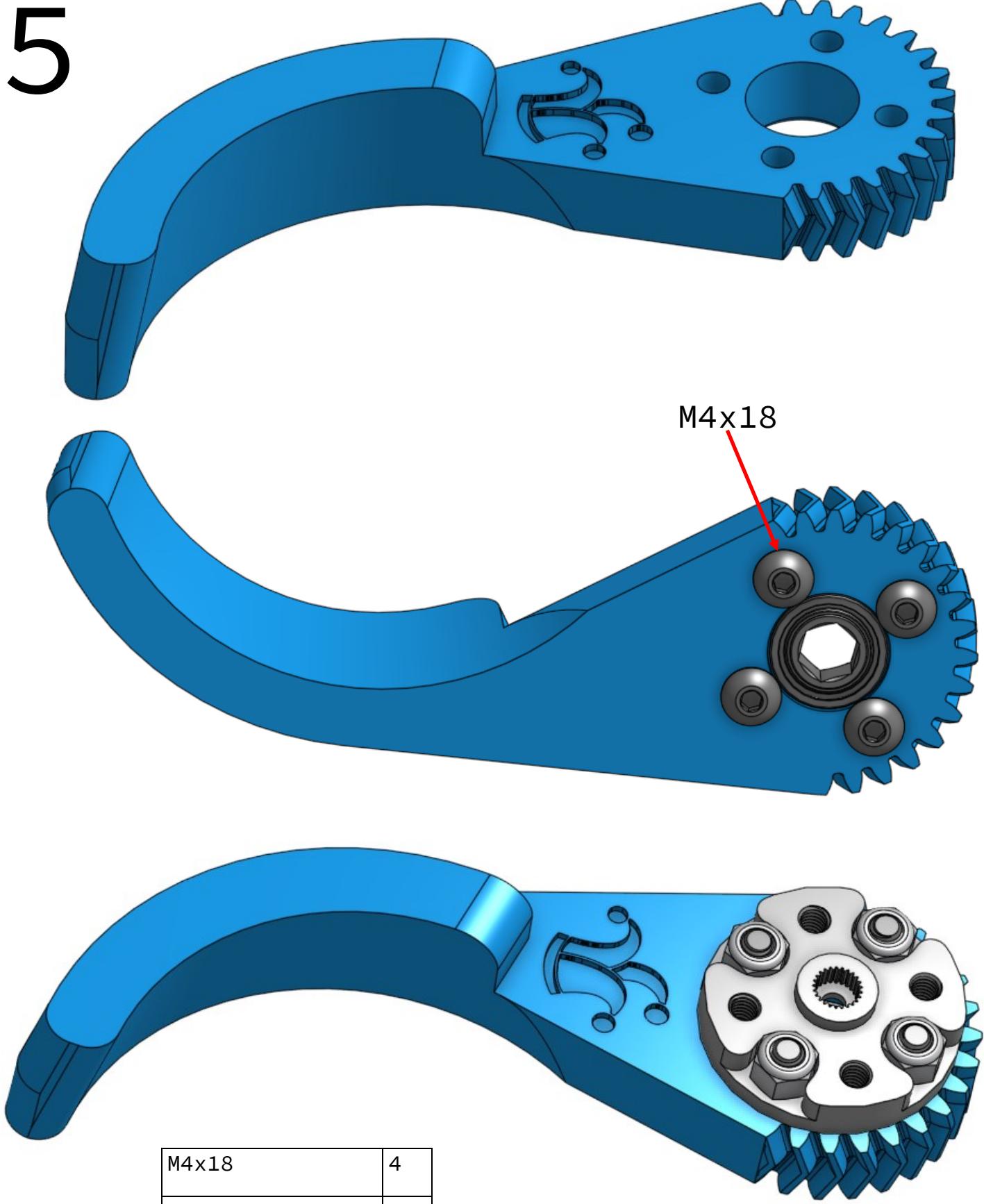


4

Ensure Bearing flanges are
properly seated inside recess



5



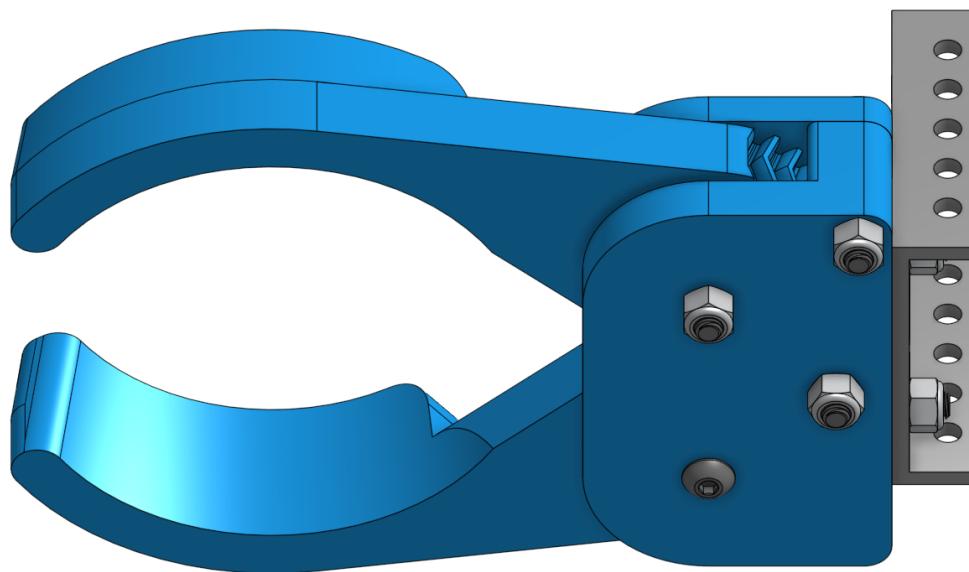
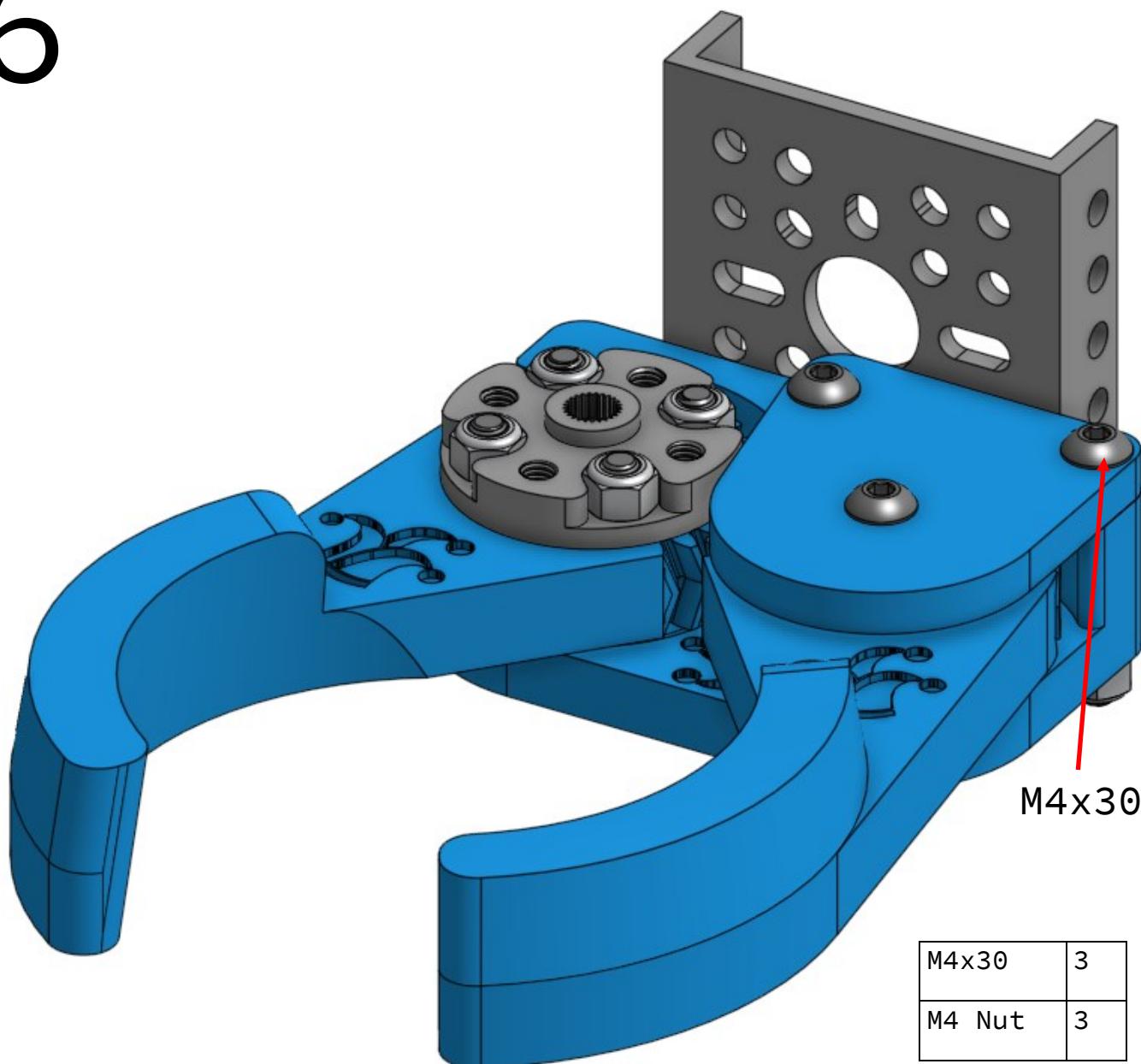
M4x18	4
M4 Nut	4
8mm hex bearing	1

6

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

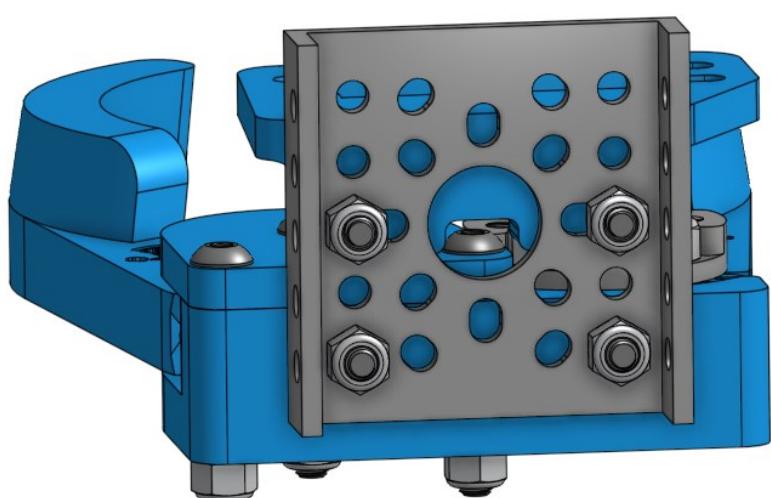
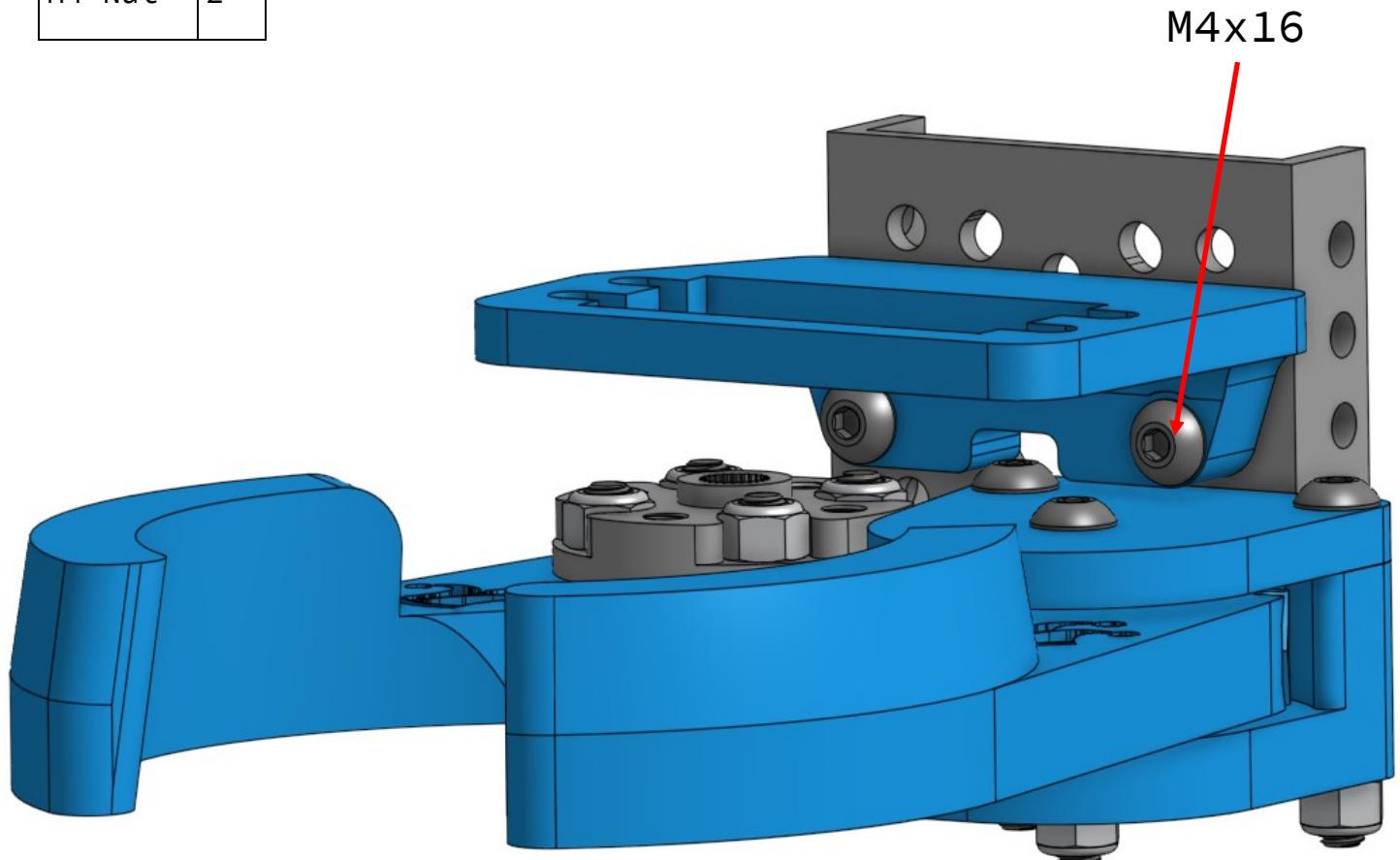


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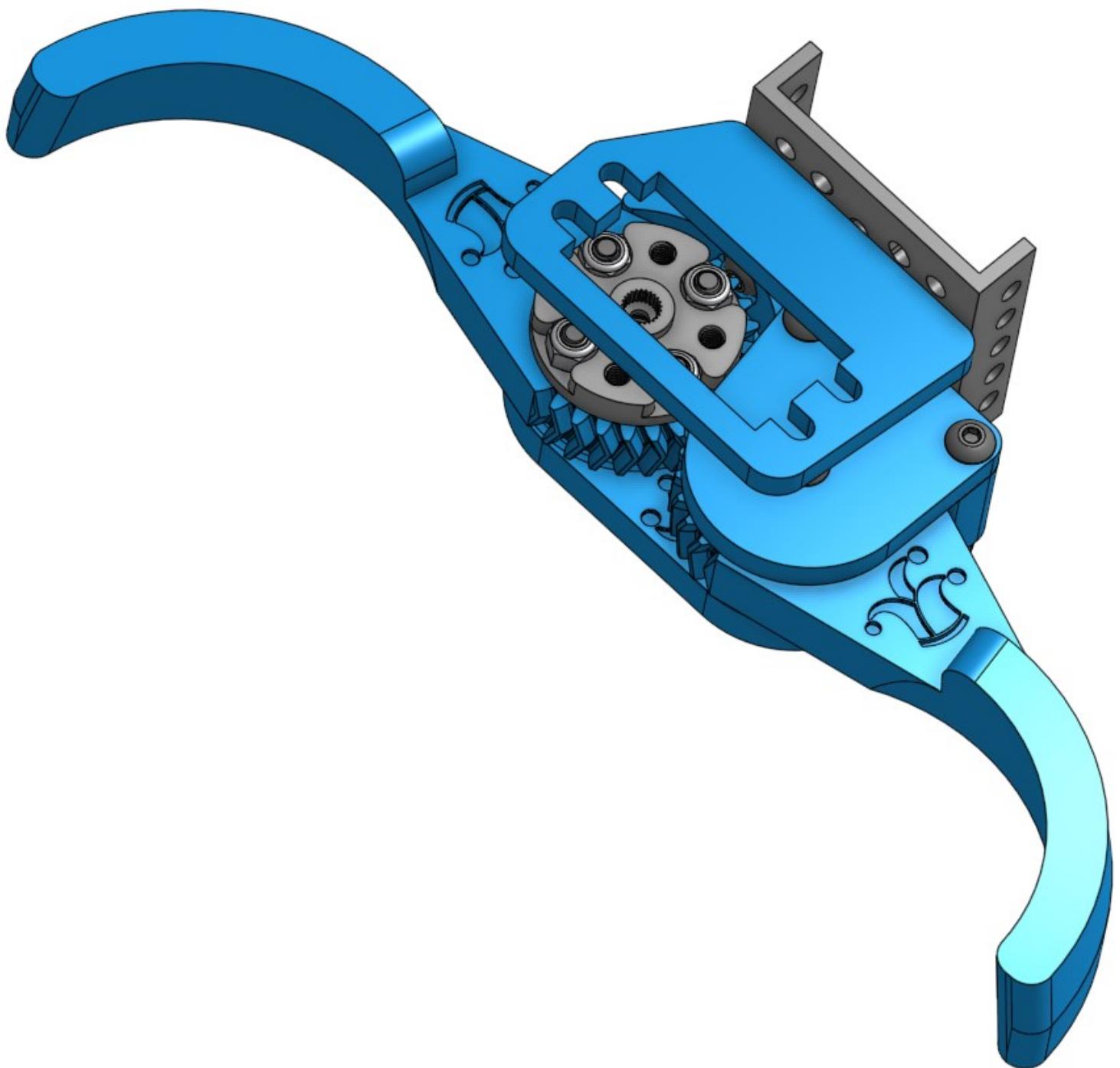


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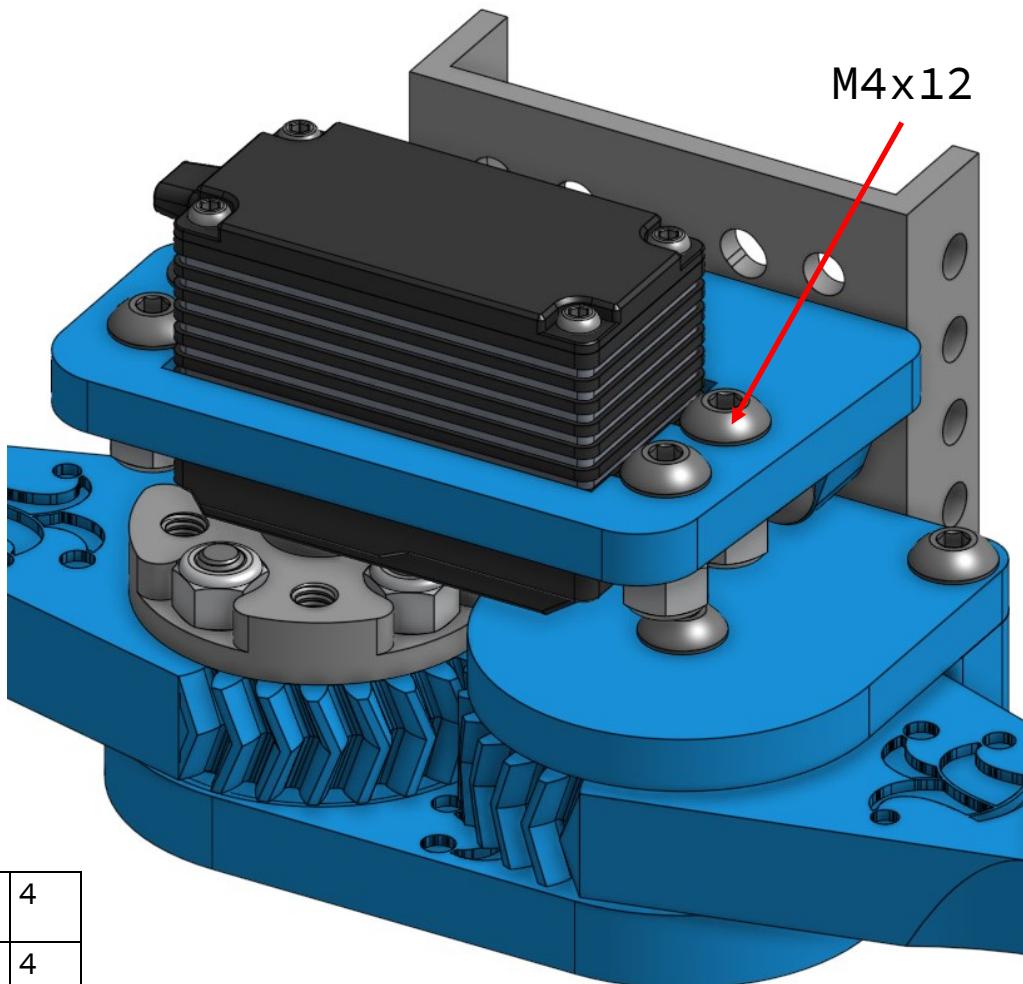
M4x16	2
M4 Nut	2



Open arms all the way
before installing servo.

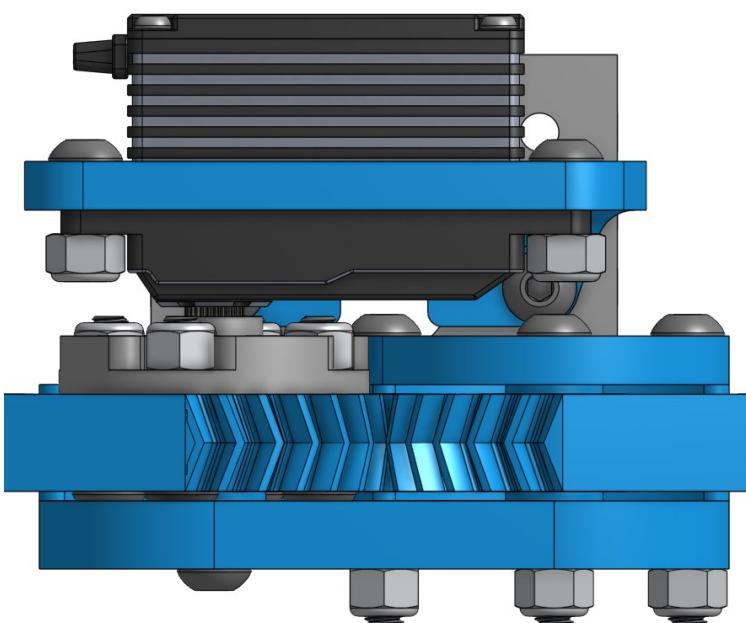


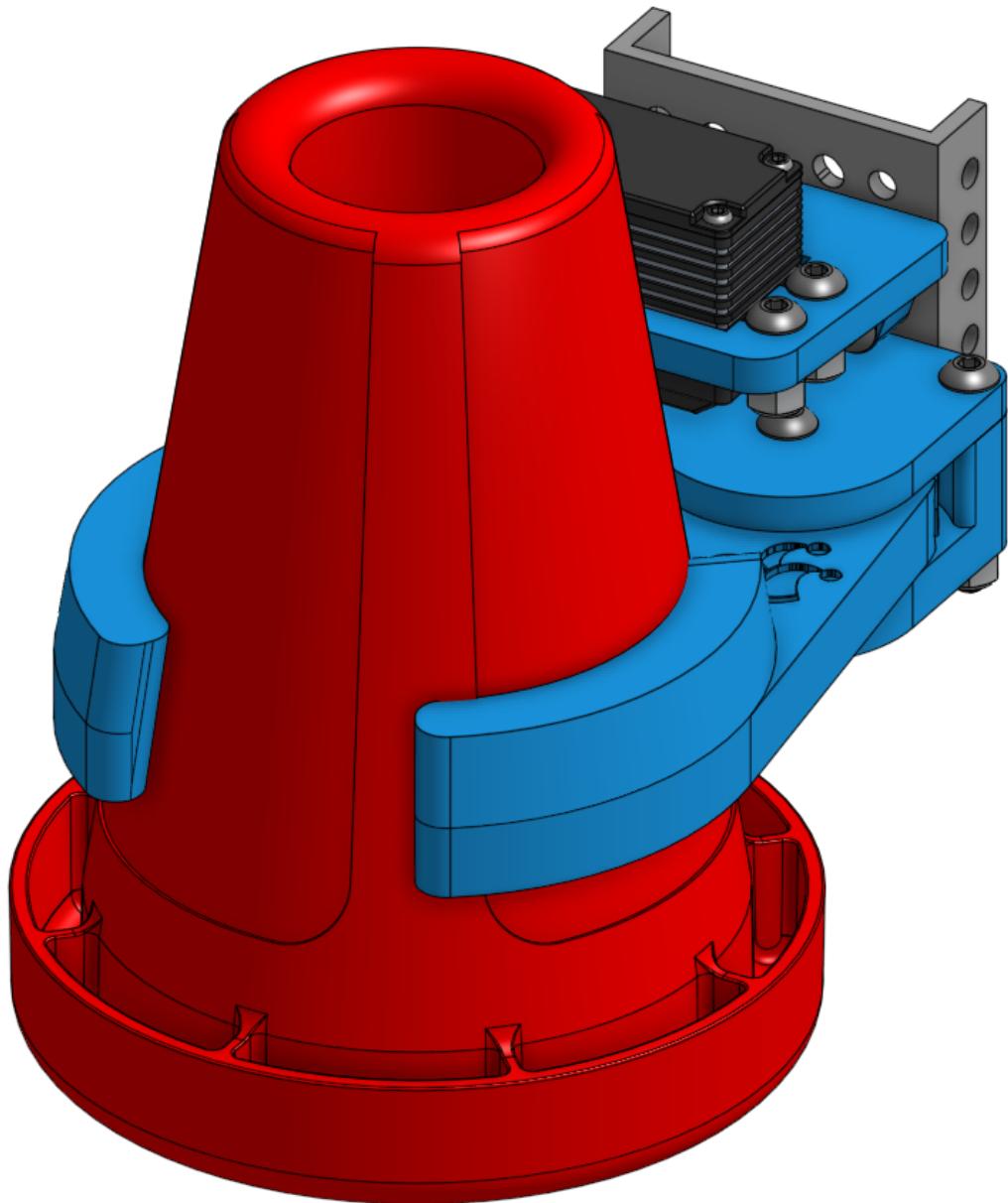
8



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.





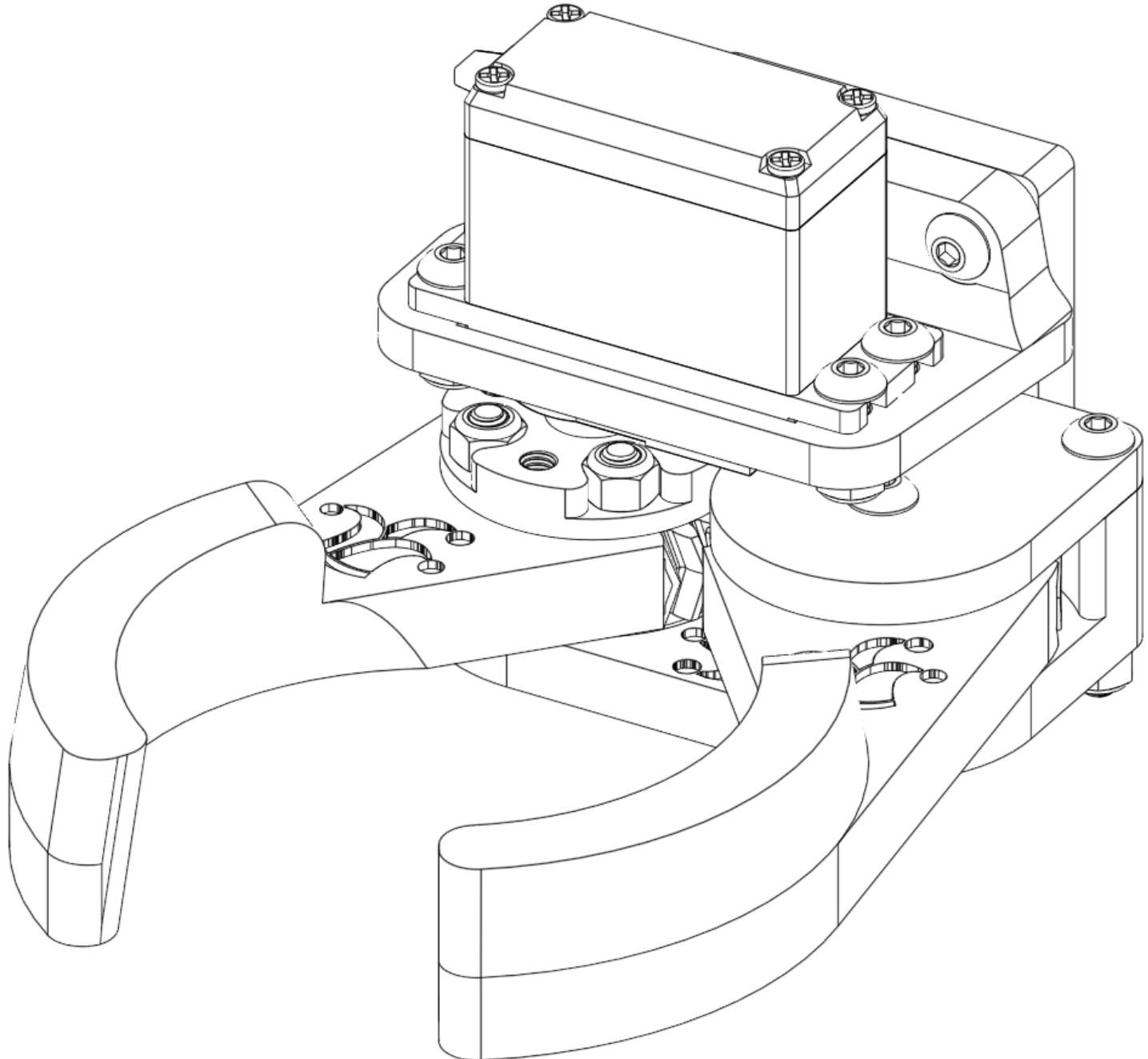
ADDITIONAL INFORMATION

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>

Axon Viper Slide Mount



Use this design to mount a claw directly to a viper slide stack. This design requires longer screws in the bottom bracket of the final viper slide stage. This design uses an Azon Mini/Mini+ instead of a standard size servo.

BILL OF MATERIALS

PART NAME	SKU	QUANTITY	CHECK
block mount		1	
idle arm		1	
servo arm		1	
top plate		1	
Axon Mini servo mount		1	
viper adapter		1	
M4x12	2802-0004-0012	9	
M4x16	2802-0004-0016	2	
M4x18	2802-0004-0018	4	
M4x30	2802-0004-0030	3	
M4 Nut	2812-0004-0007	18	
4mm ID Spacer, 24mm	1502-0006-0240	1	
25 Tooth Spline Servo Hub	1908-0025-0032	1	
Axon Mini/Mini+ Servo		1	
6mm Bearing	1611-0514-0006	2	
8mm Hex Bearing	1611-0514-4008	1	
Surgical tube/hot glue/ grippy material			

NOTES:

- This design will allow you to mount a claw directly to a set of viper slides. The screws on the bottom bracket of the final stage of the viper slide stack will need to be lengthened in order to attach the assemblies together.
- 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

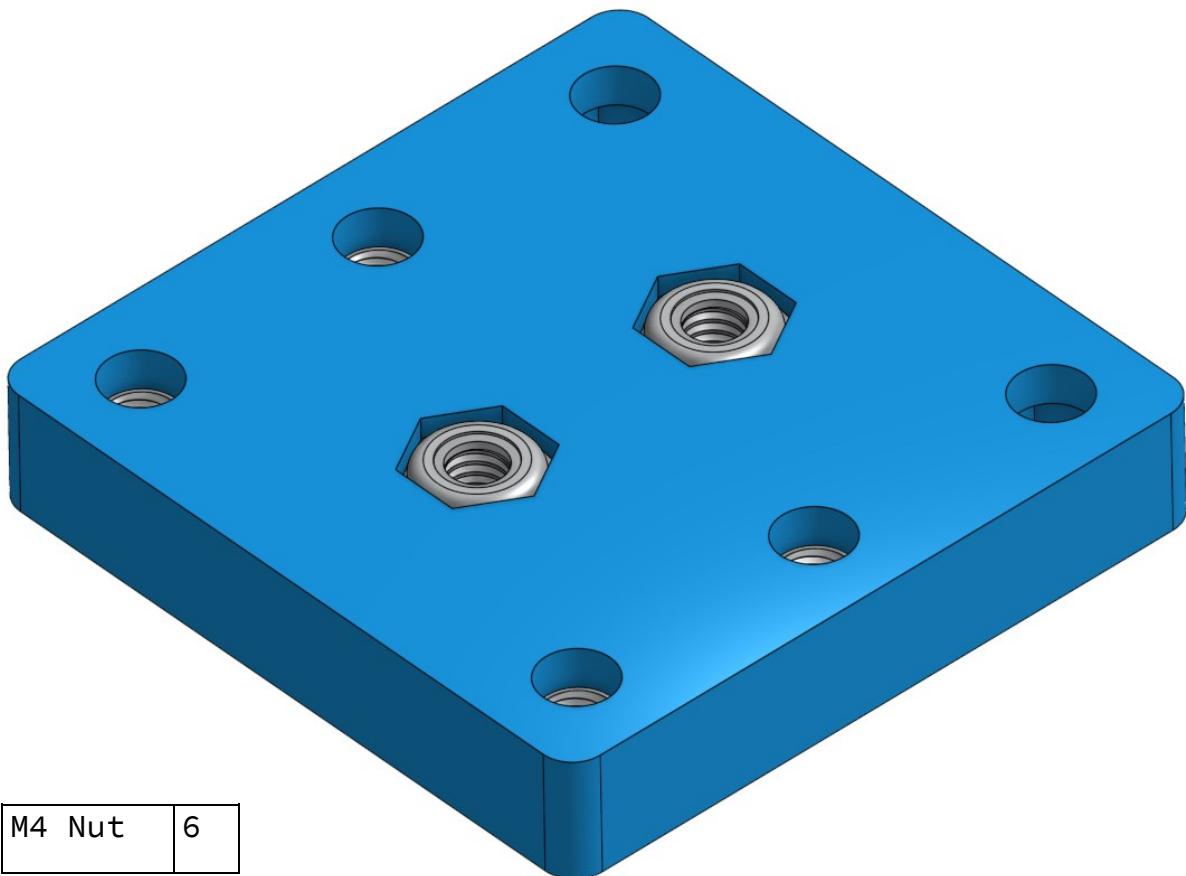
NOTE: Your printer or filament may vary. This is intended only as a starting point.

PART NAME	INFILL	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
Axon Mini 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
Axon Mini servo mount	100	2	4
viper adapter	100	4	4

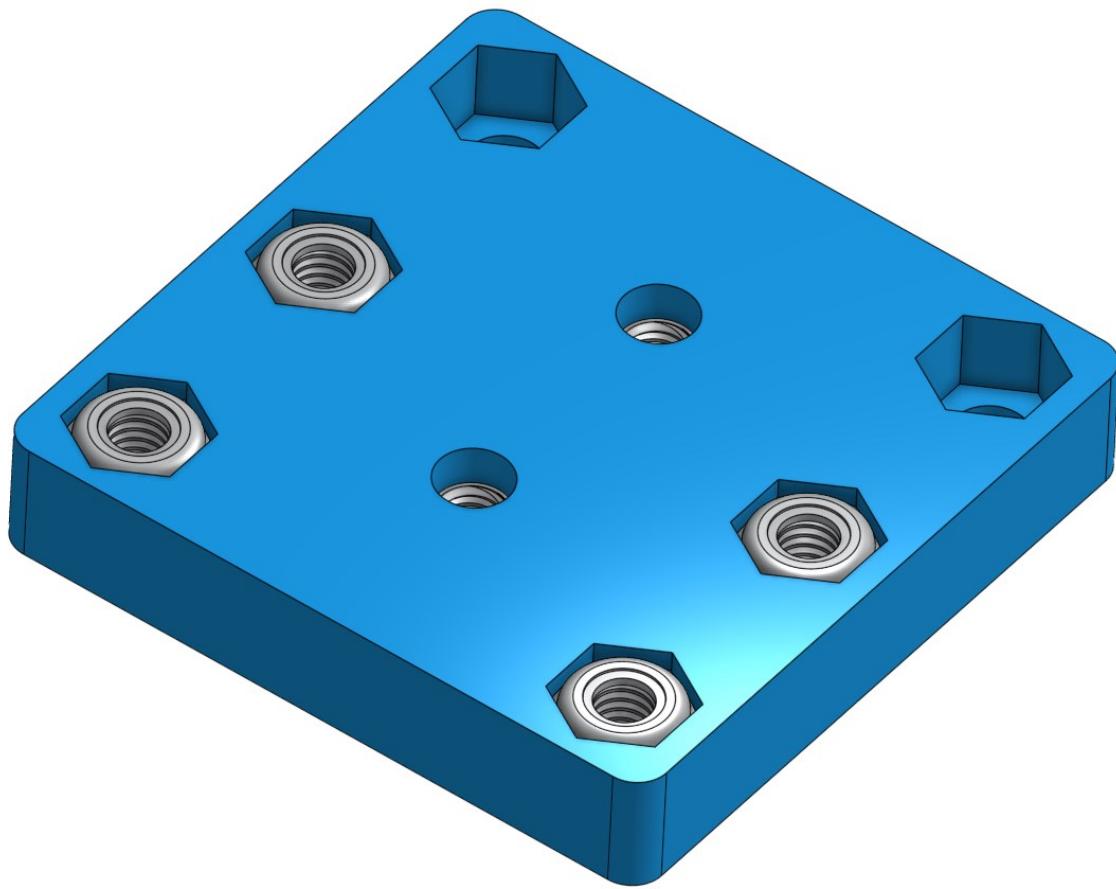
These settings are designed to create the strongest parts possible. They are not ordered towards creating the lightest parts possible. With some adjustment, the weight of this claw may be reduced by a few dozen grams at the expense of some strength.

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.

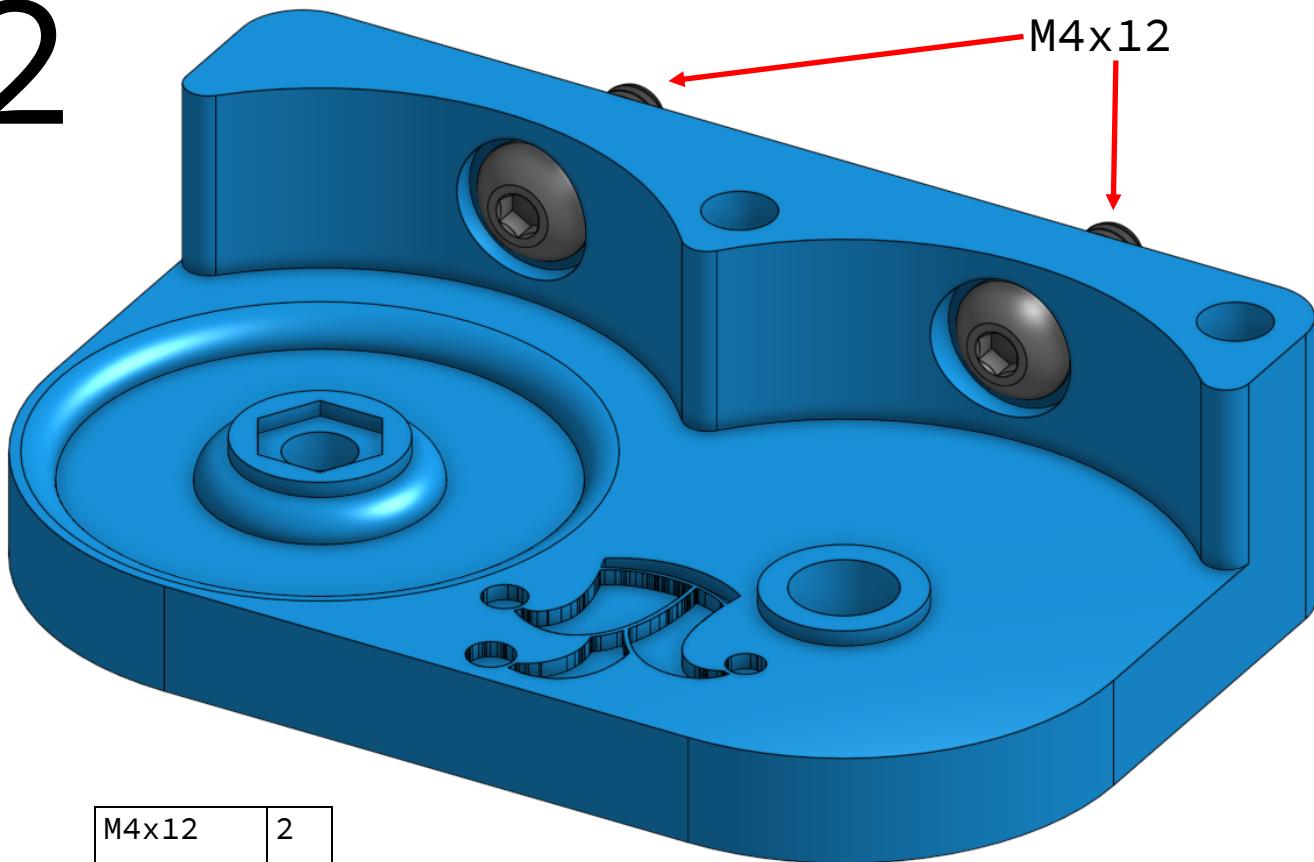
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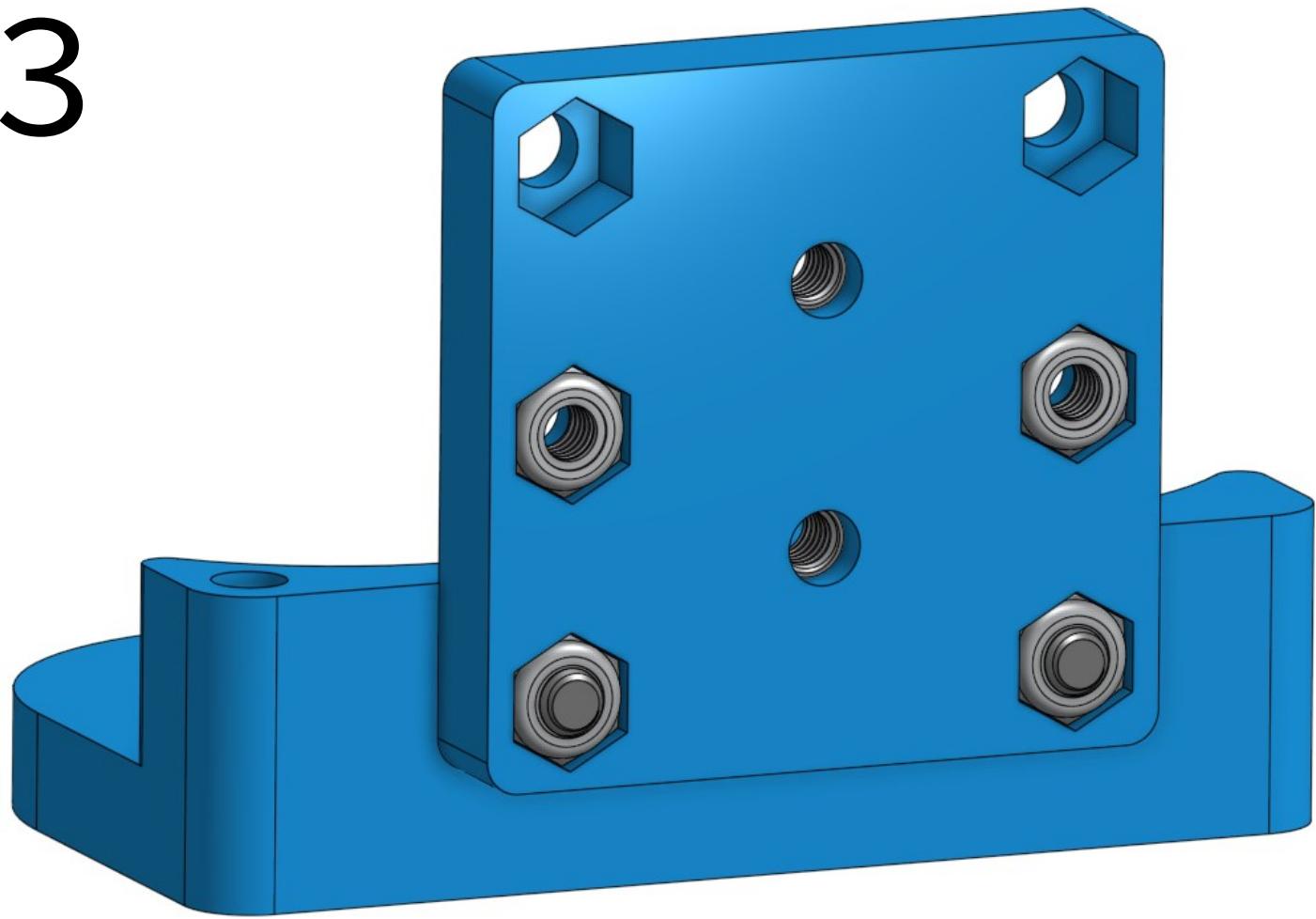
M4 Nut	6
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2

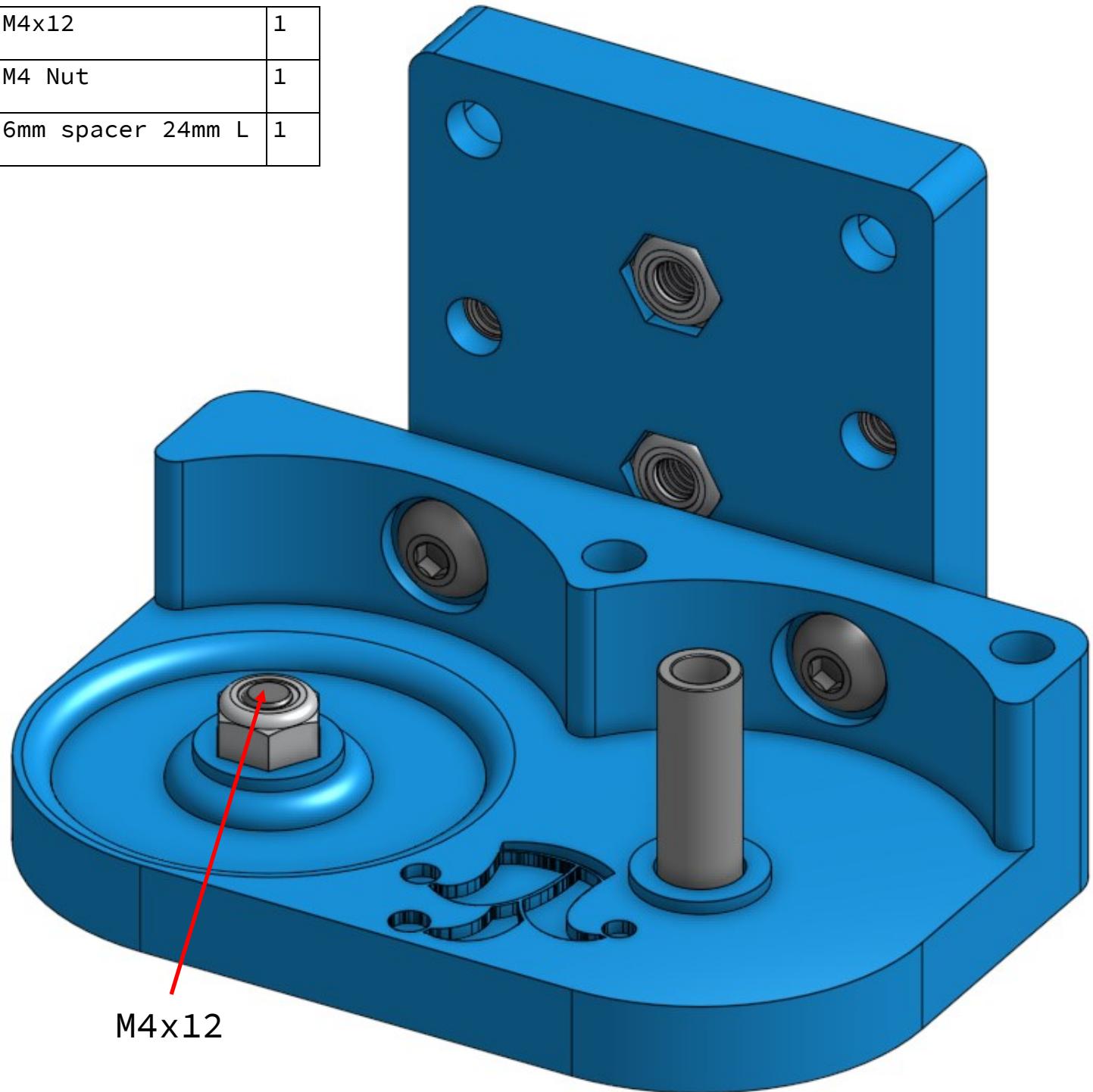


3



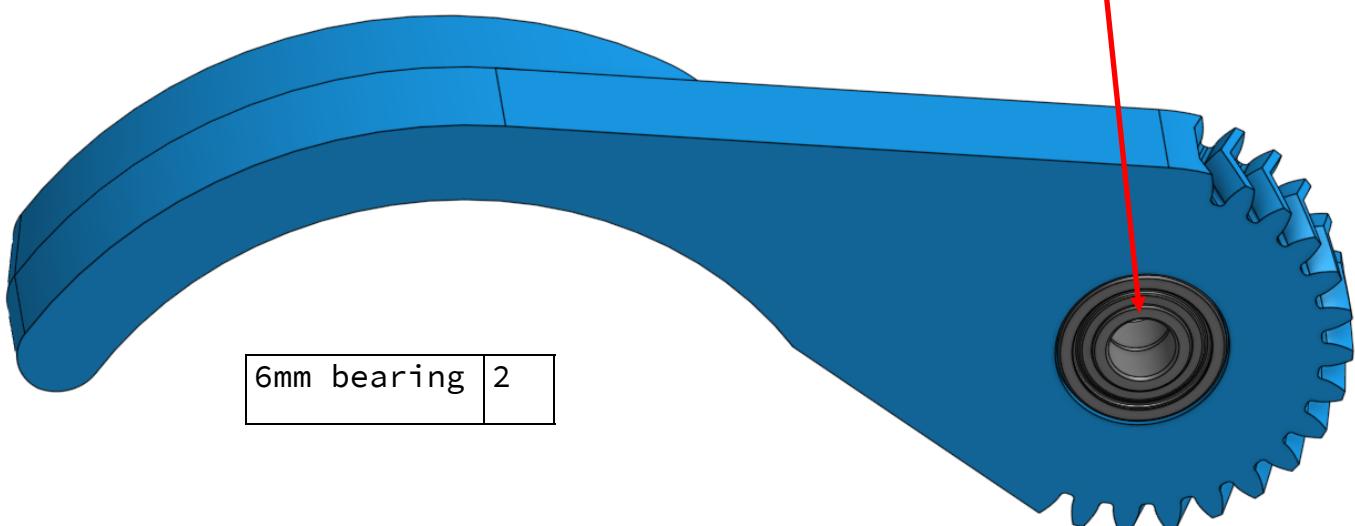
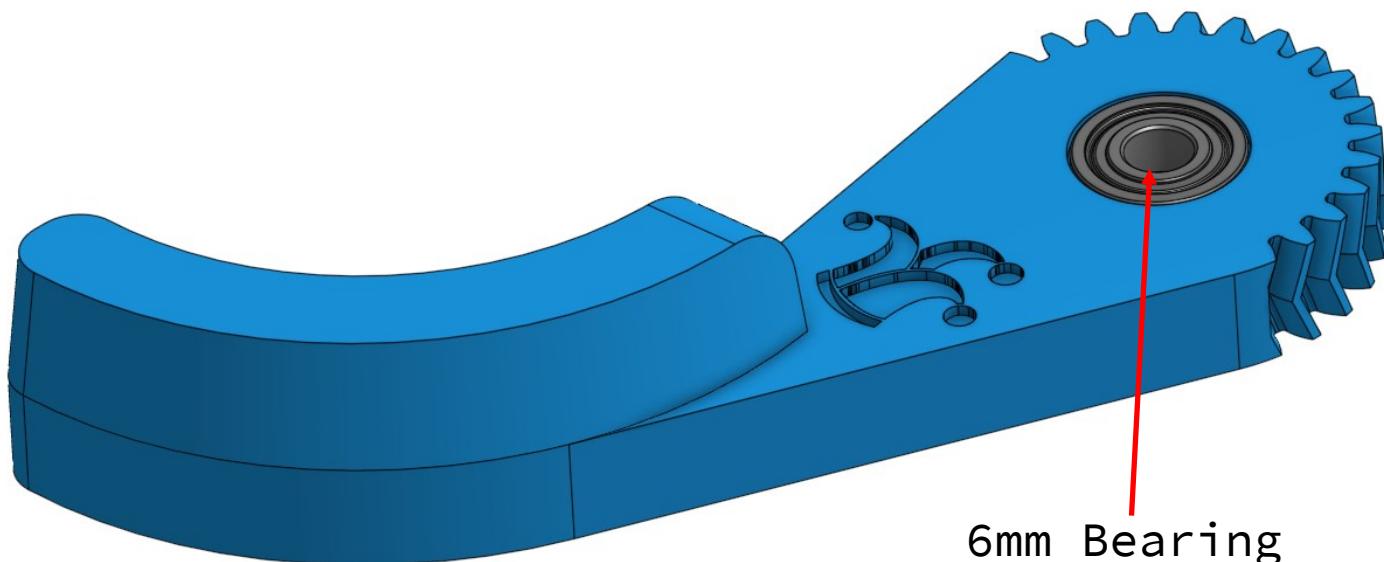
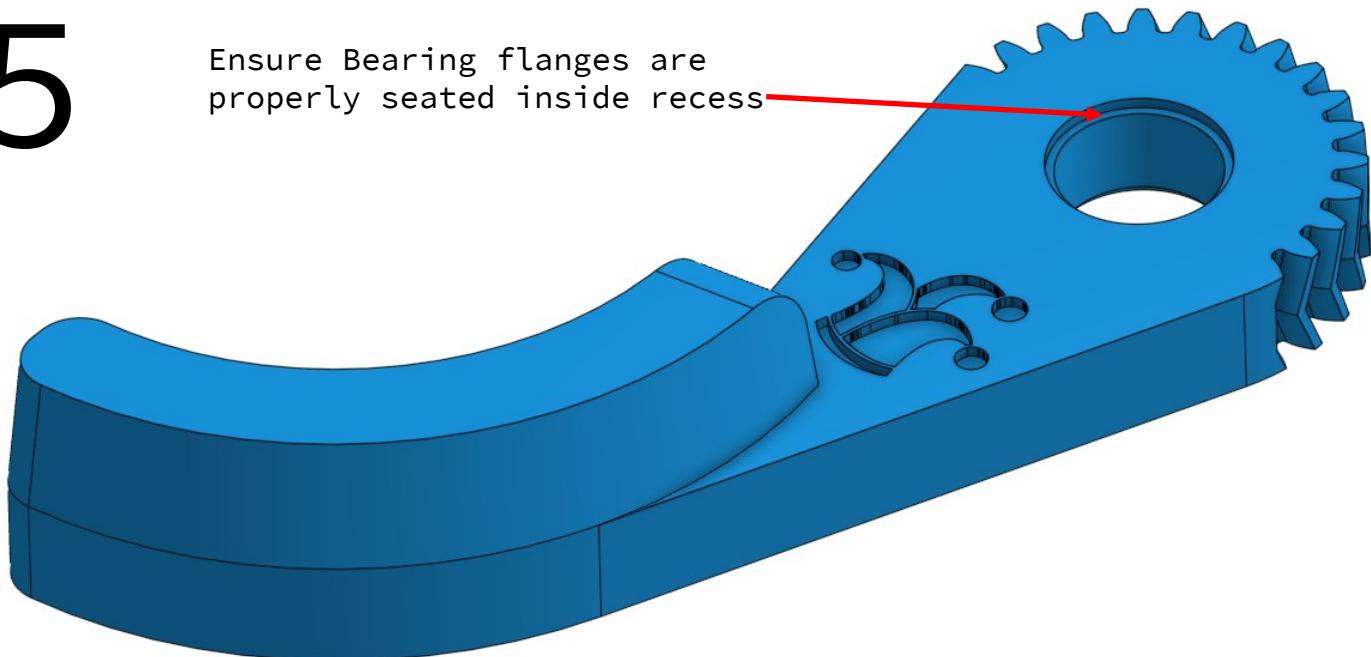
4

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

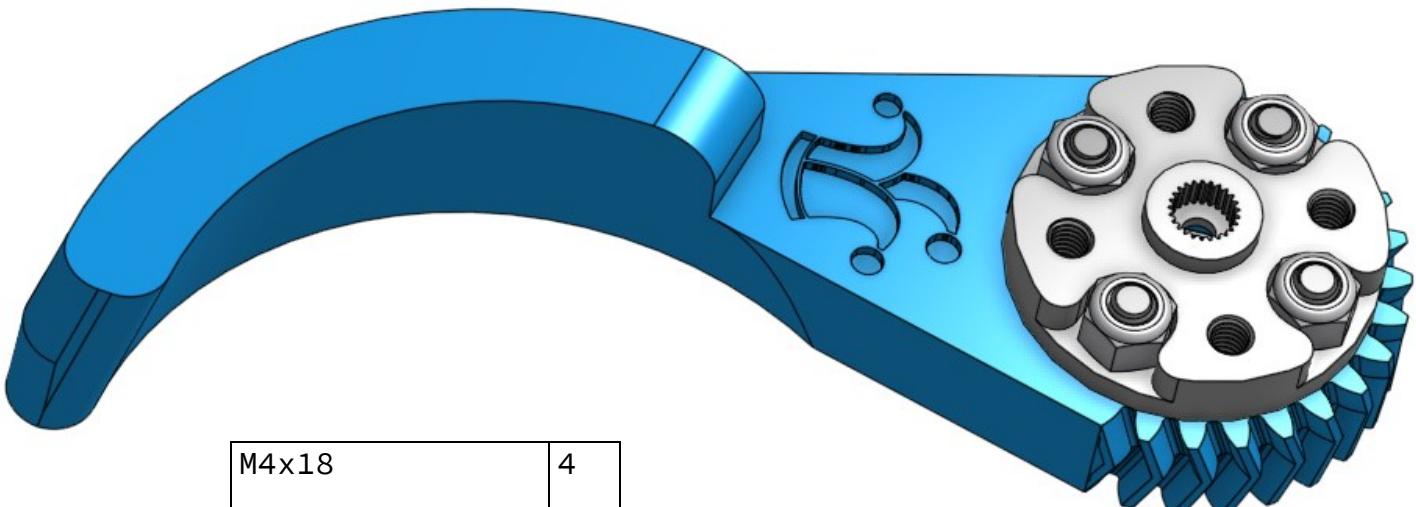
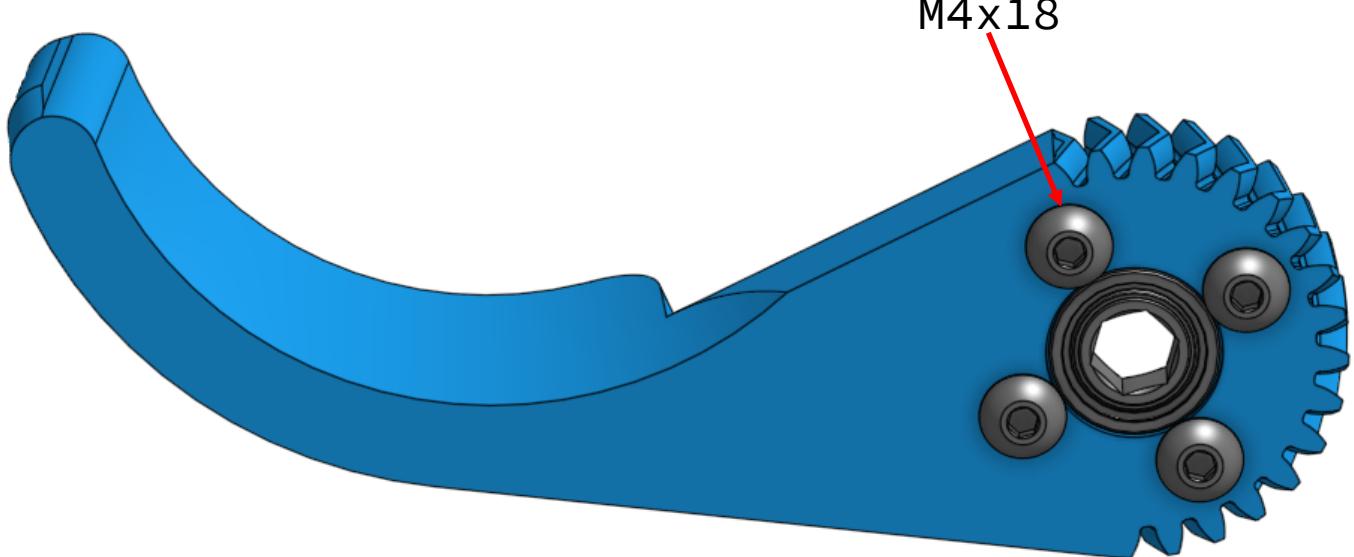
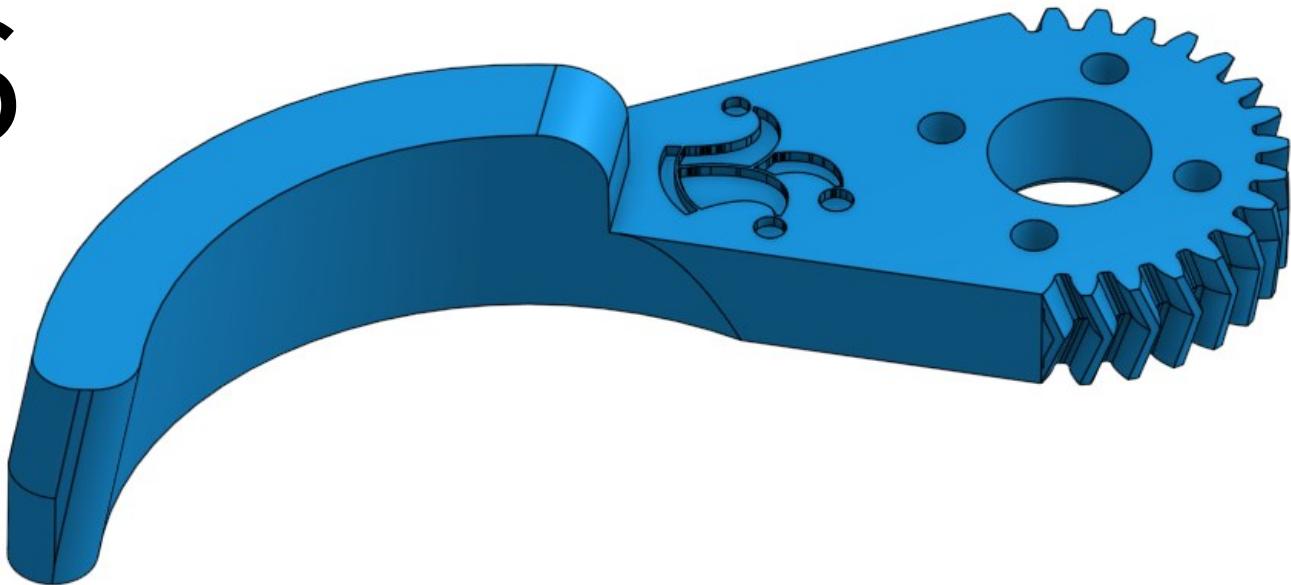


5

Ensure Bearing flanges are
properly seated inside recess



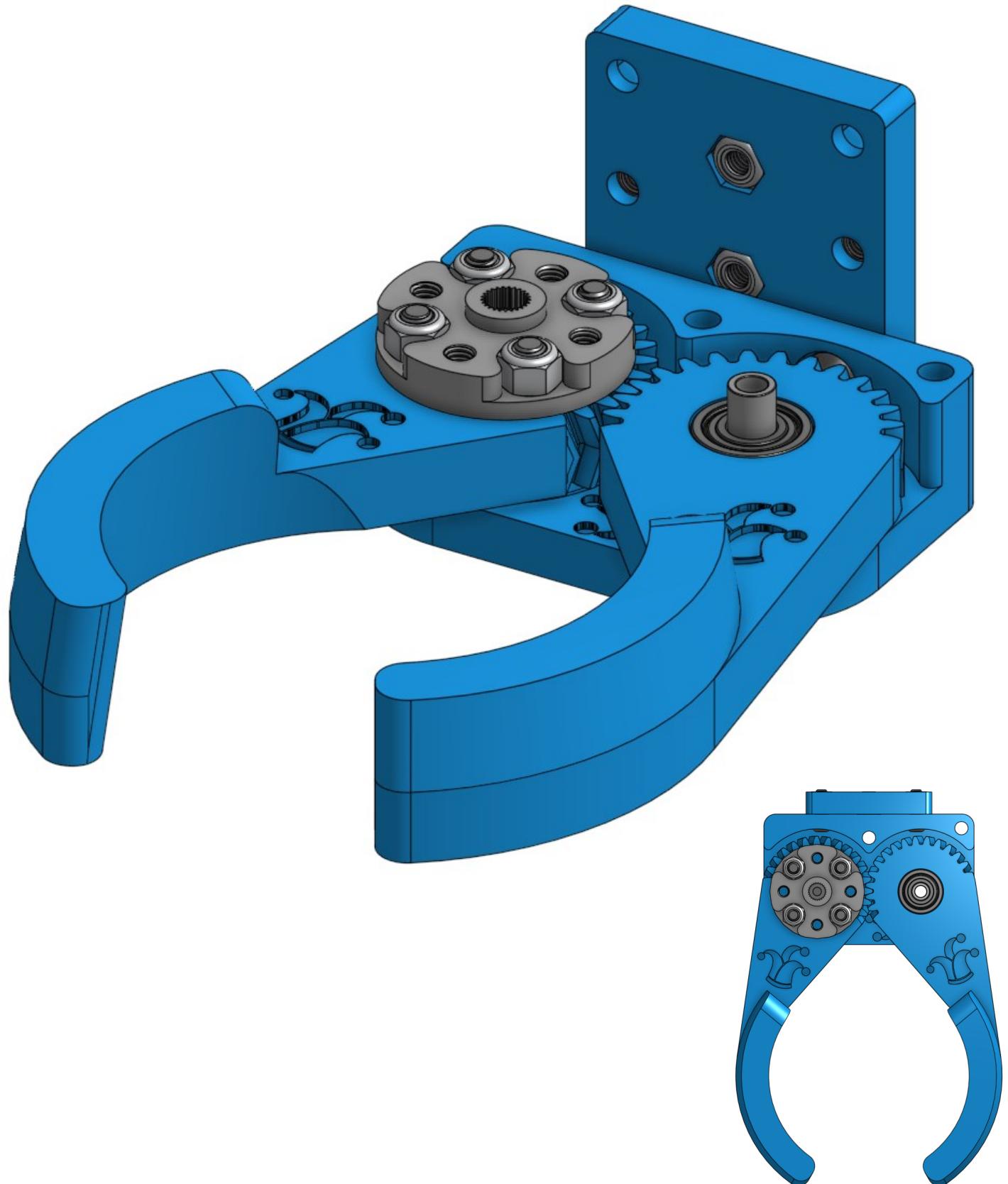
6



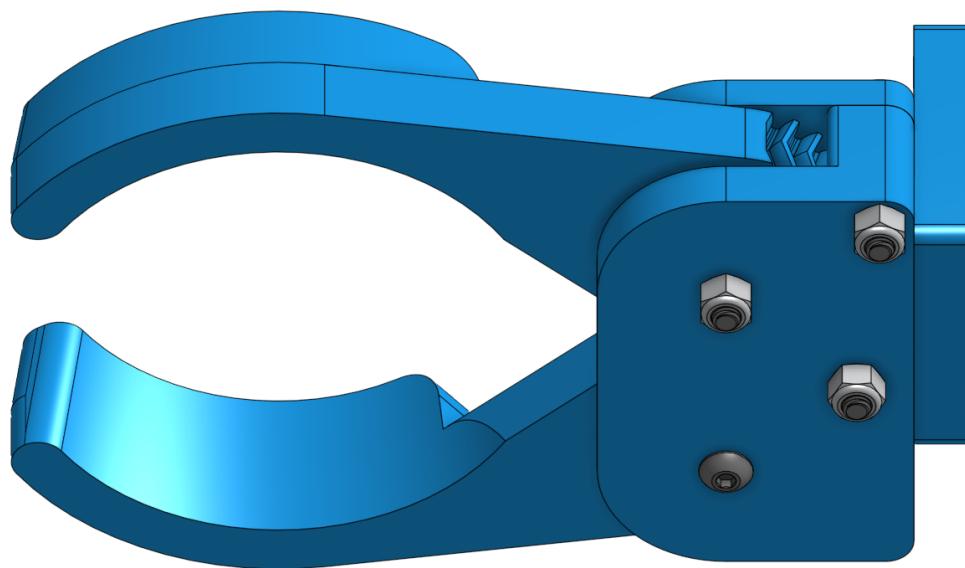
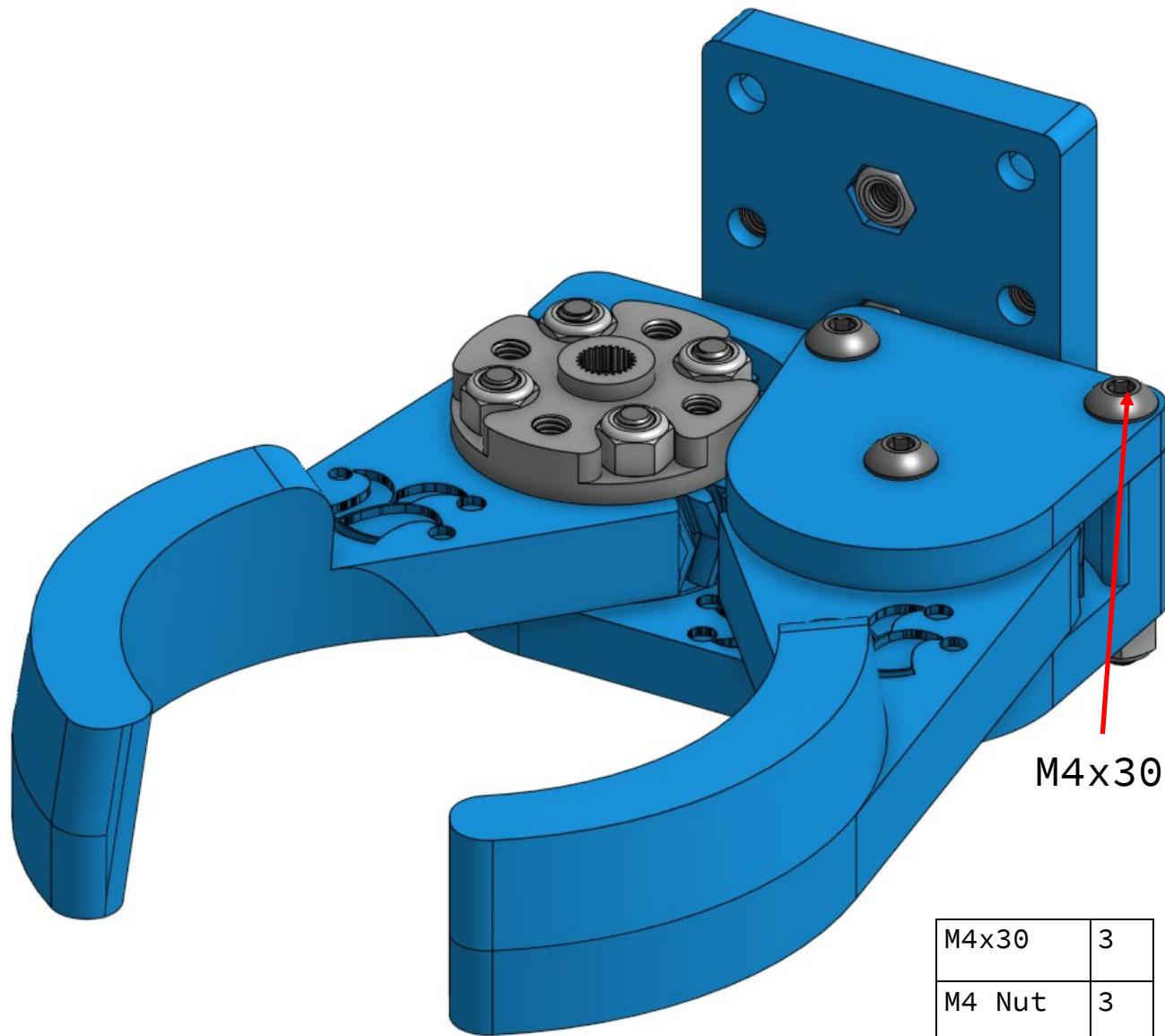
M4x18	4
M4 Nut	4
8mm hex bearing	1

7

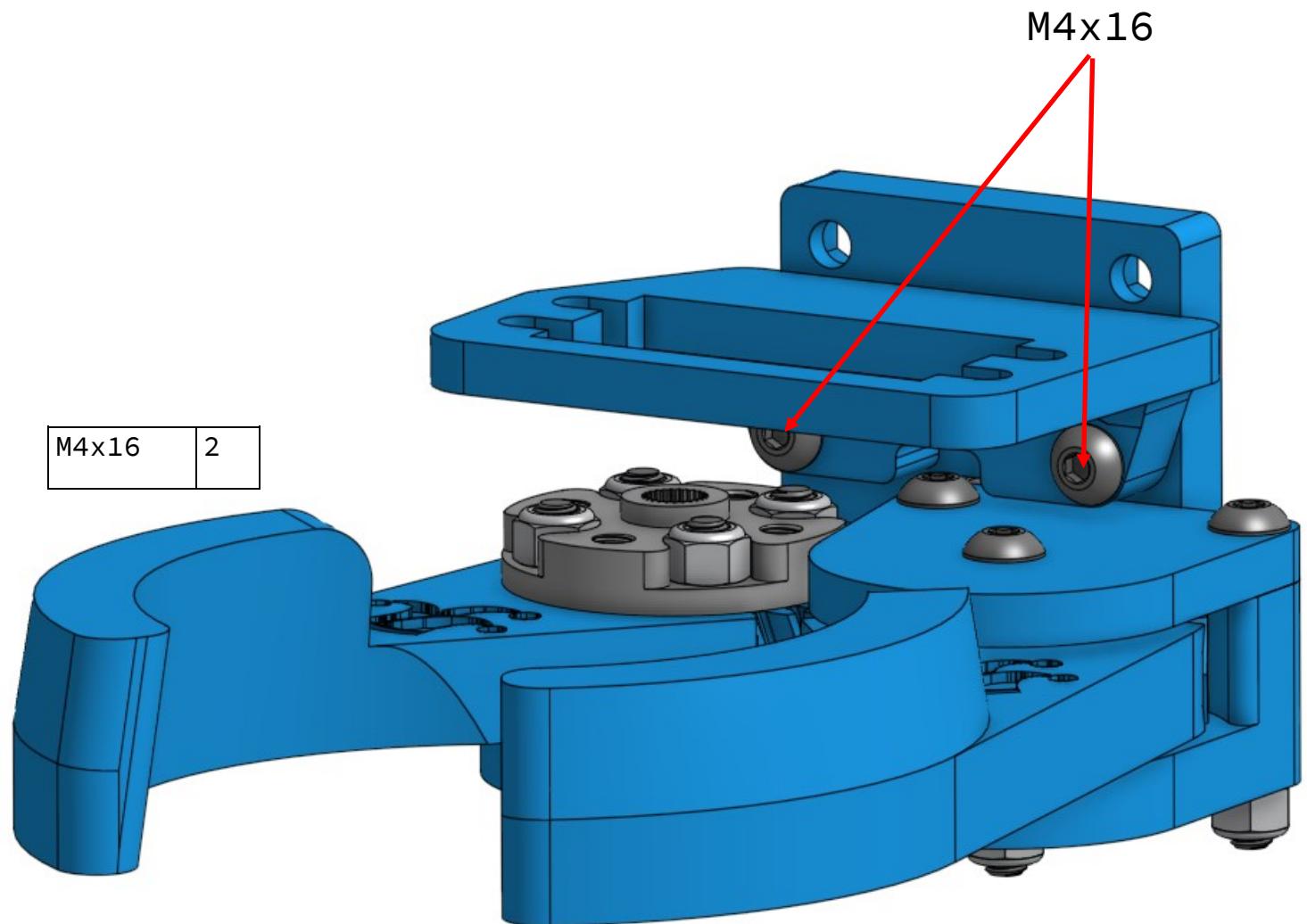
Ensure teeth are properly meshed and arms aligned to center of assembly.



7



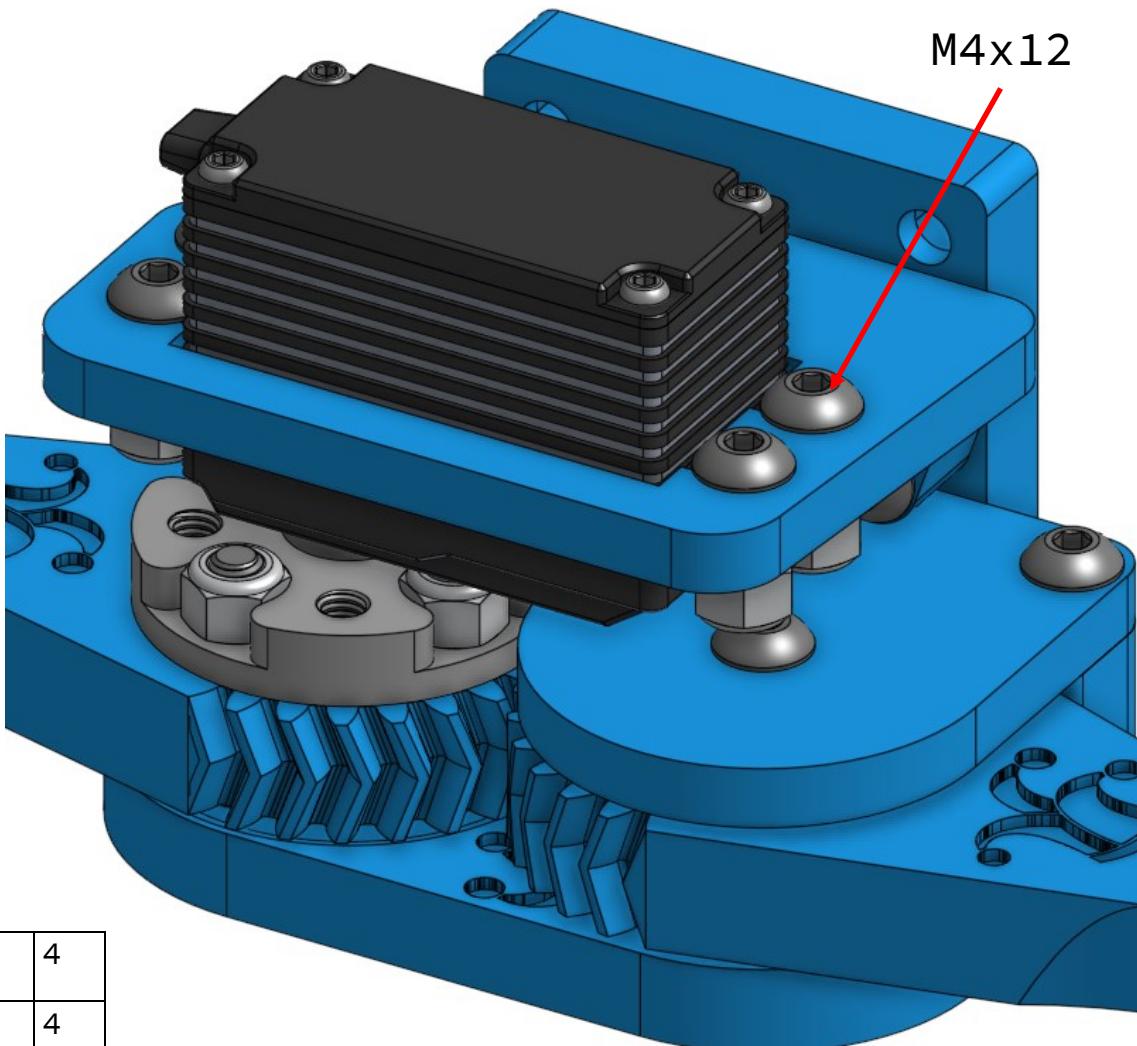
8



Open arms all the way
before installing servo.

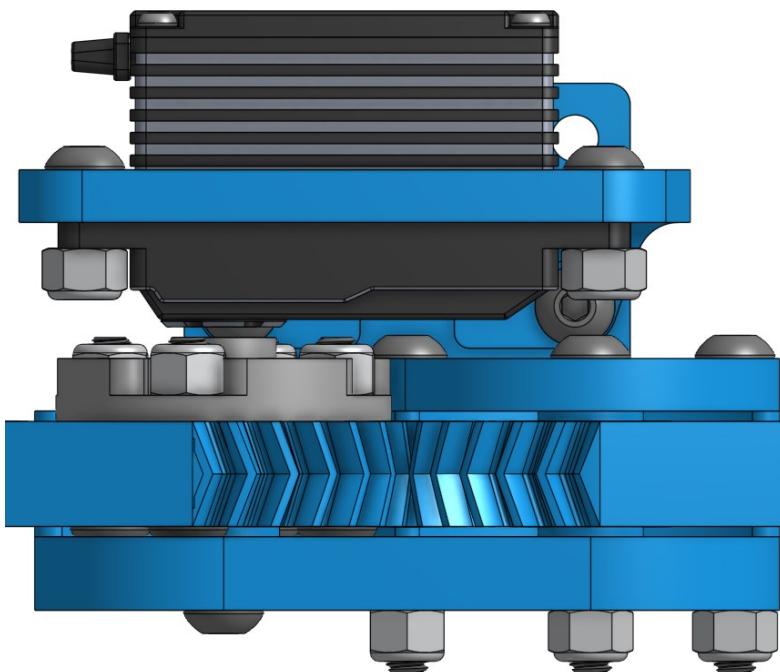


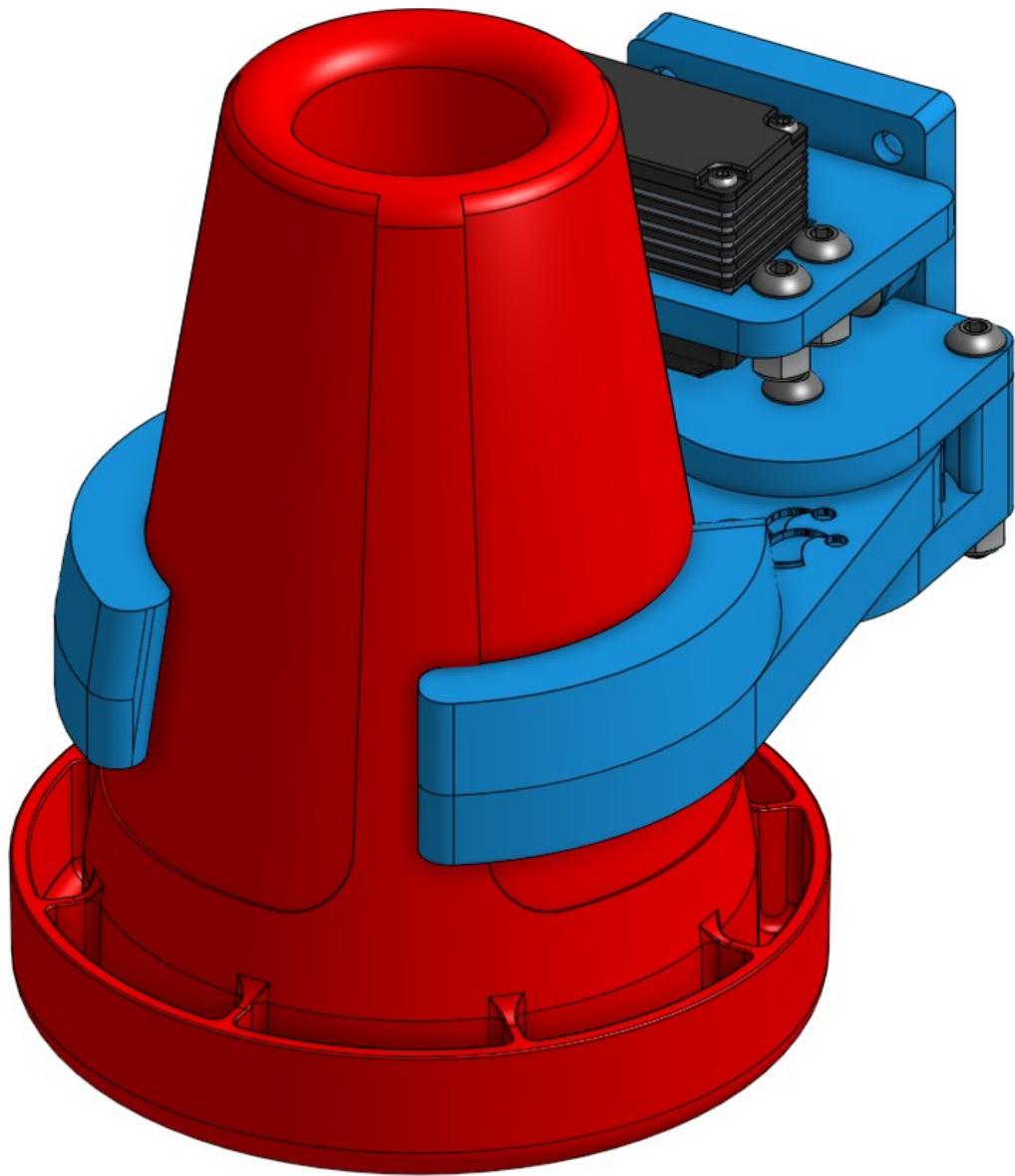
9



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.





ADDITIONAL INFORMATION

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SEE [PAGE 30](#) FOR MOUNTING INSTRUCTIONS