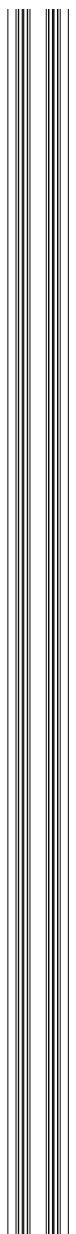
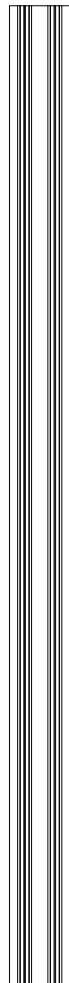


XY[Z]

STRUCTURE ASSEMBLY



Profil
X-Axis
20x40



Profile
Y-Axis
20x40



Nut
m5
x8



Washer
M5
x24



Nut
m3
x9



T-nuts
x8



Screw
M3x10
x20



Screw
M5x30
x4



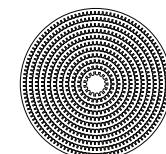
V-slotwheel
x8



Washer
M3
x14



Inner pulley
GT2 6mm
x5



Belt GT2 6mm
5m

PARTS TO 3D PRINT OR LASER CUT



Plate
Nema17
x2

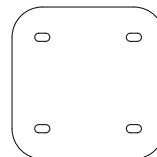


Plate
Y-Axis

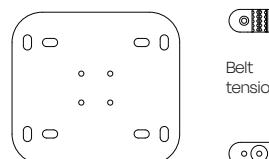


Plate
X-Axis

PARTS TO 3D PRINT



Spacer
8mm
x8



Spacer
16mm
x4

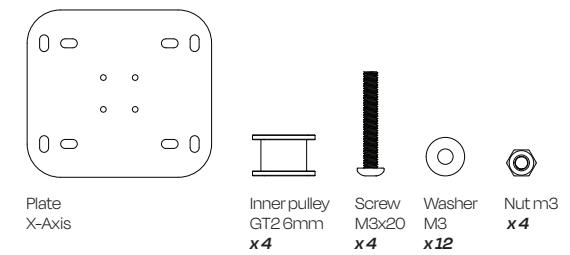
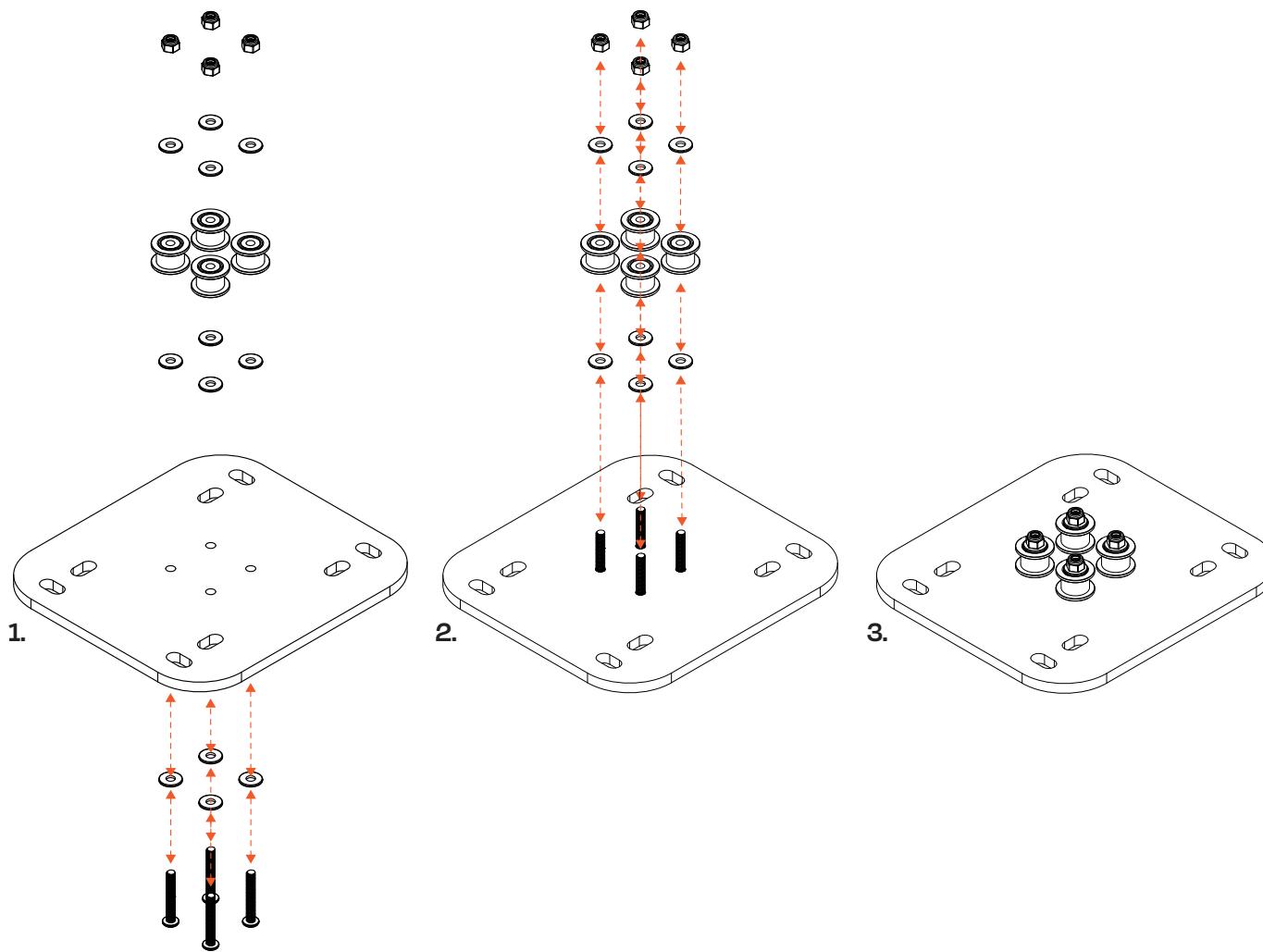


Belt
tensioner



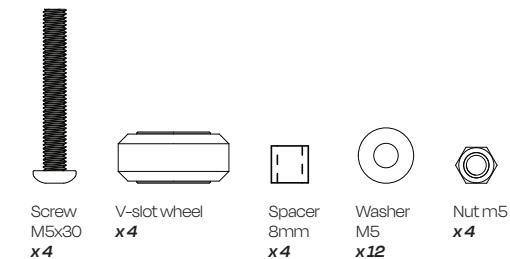
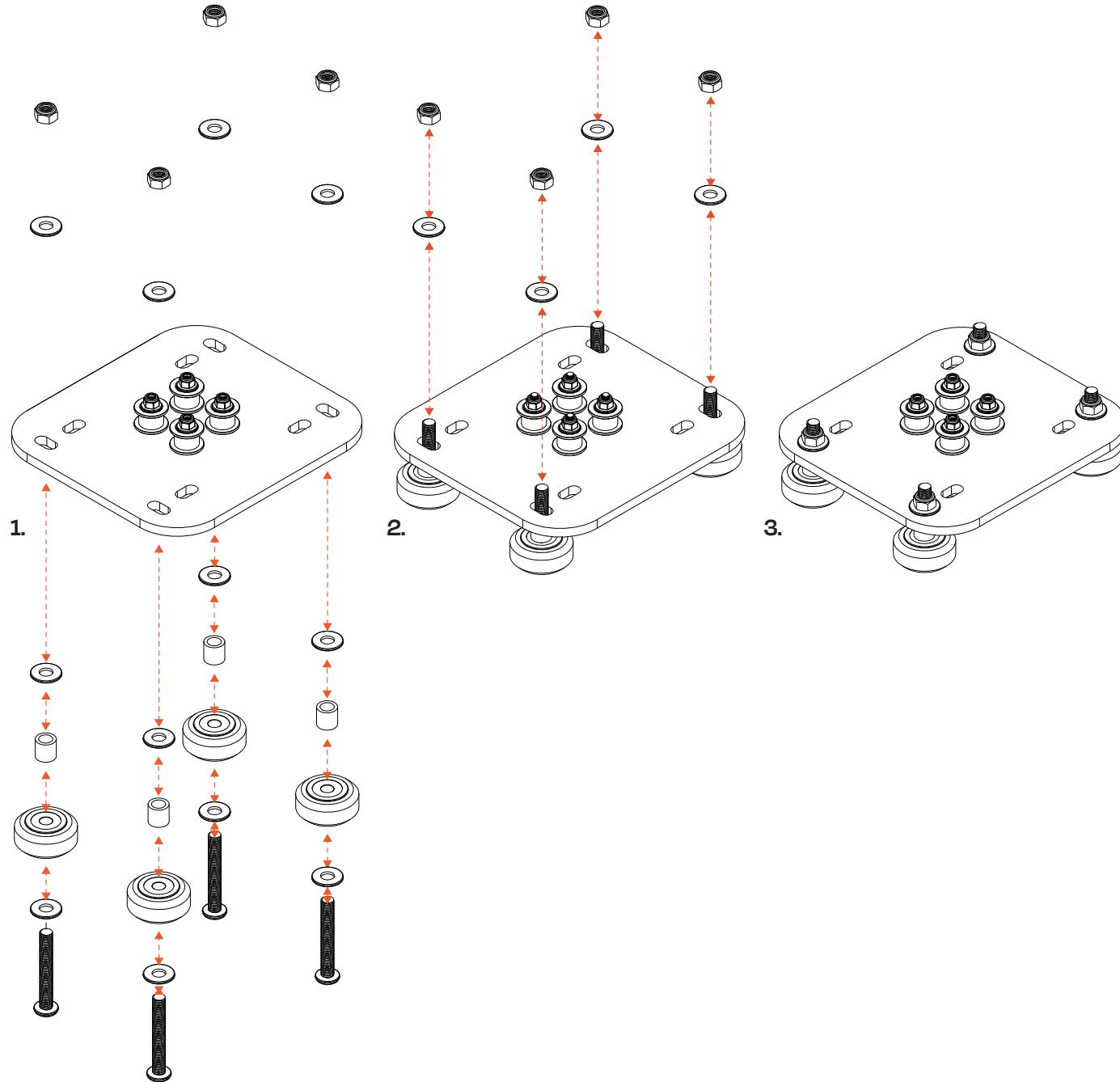
Plate
Inner pulley

1.



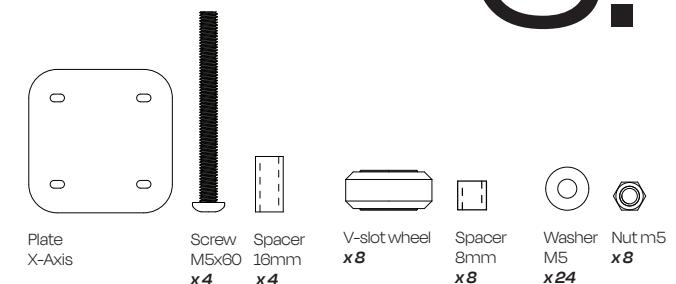
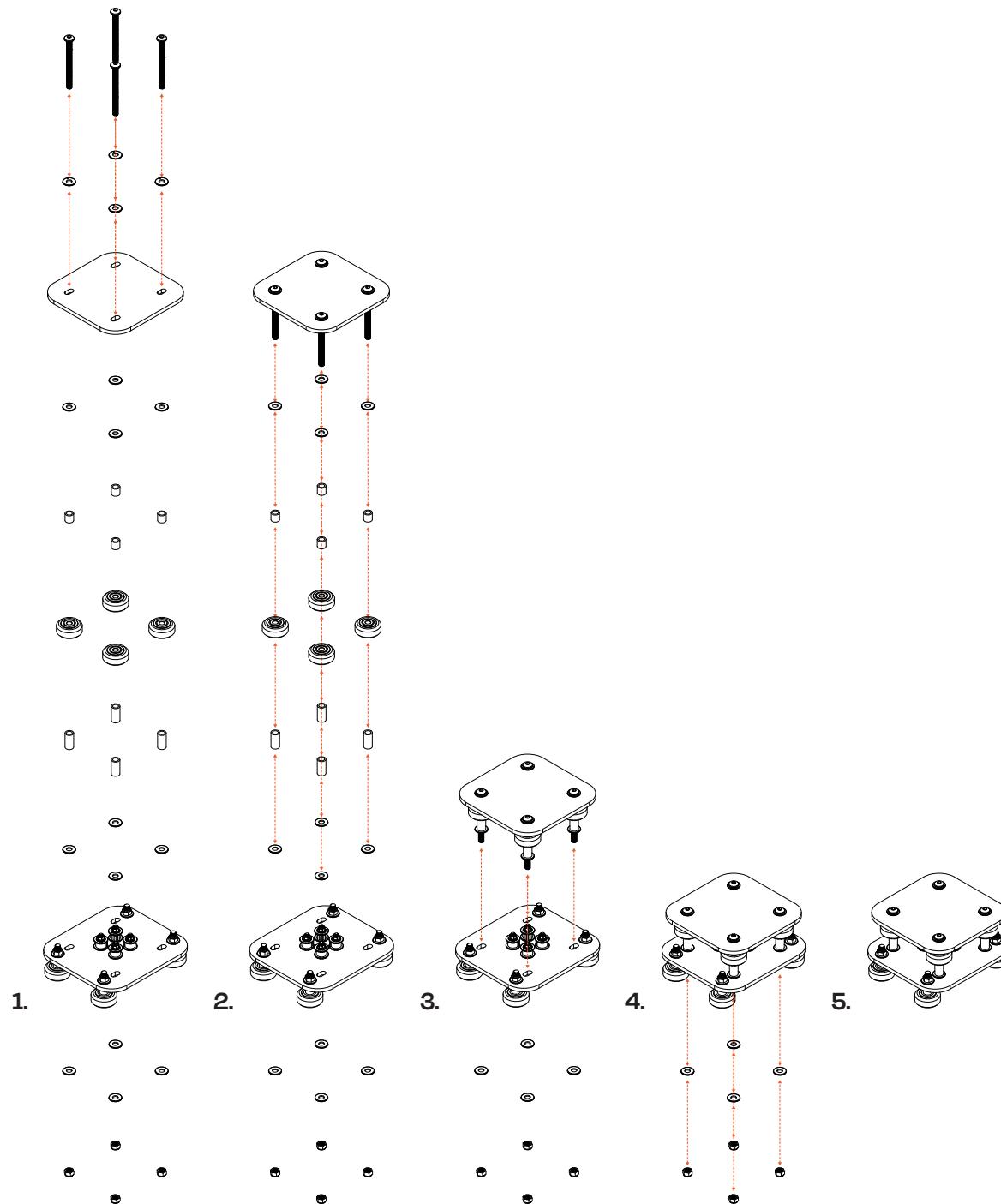
1. First, slide the washers onto the screws, then insert the assembly into the plate.
2. Next, thread washers onto the protruding screws, followed by the pulleys, and finally washers. Then tighten with the nuts.
3. The idler pulleys are now in place.

2.



1. First, thread a washer, a V-SLOT wheel, a spacer, and finally another washer onto each screw. Then insert the complete assembly into the plate.
2. Next, thread a washer onto the protruding screws and then tighten with the corresponding nut.
3. The X-axis plate is now ready for use.

3.



1. First, insert the screws into the pre-drilled holes of the plate.
2. Next, on each protruding screw, thread on in succession a washer, an 8mm spacer, a V-SLOT wheel, a 16mm spacer, and a final washer.
3. Then, insert the entire assembled assembly into the X-axis plate.
4. Finally, on the screws protruding from the plate, thread on a washer and then tighten firmly with the corresponding lock nut.
5. The carriage is now assembled and ready to use.



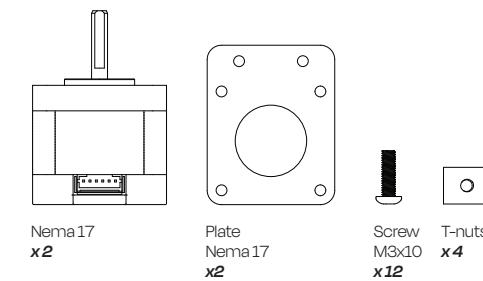
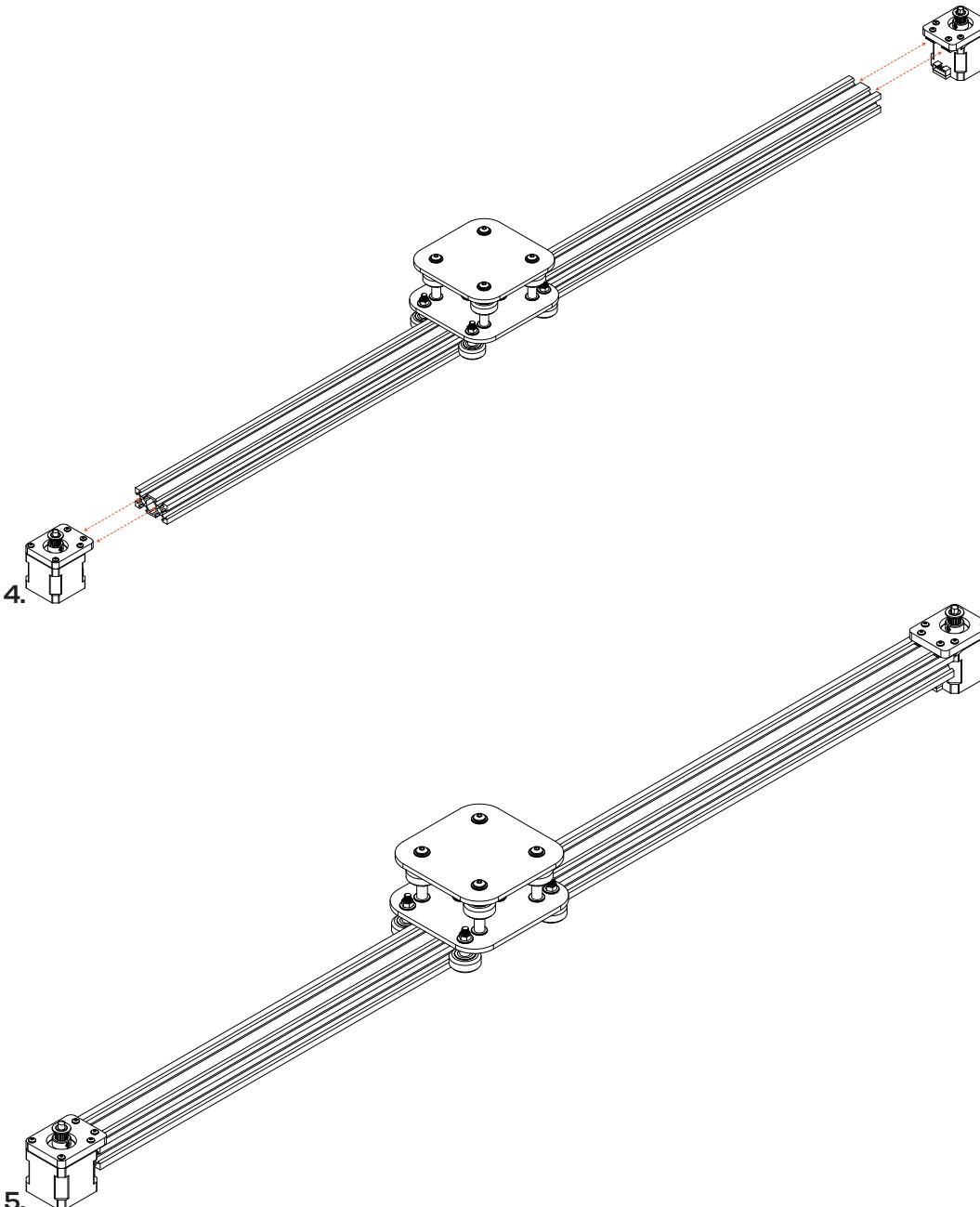
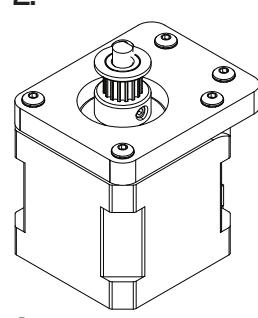
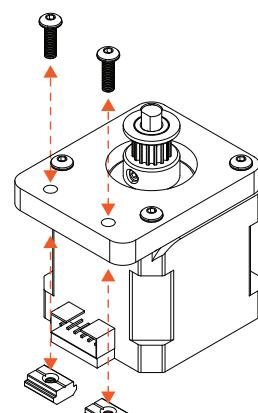
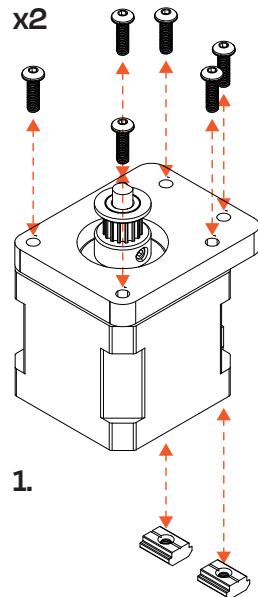
4.



Profile
X-Axis
20x40

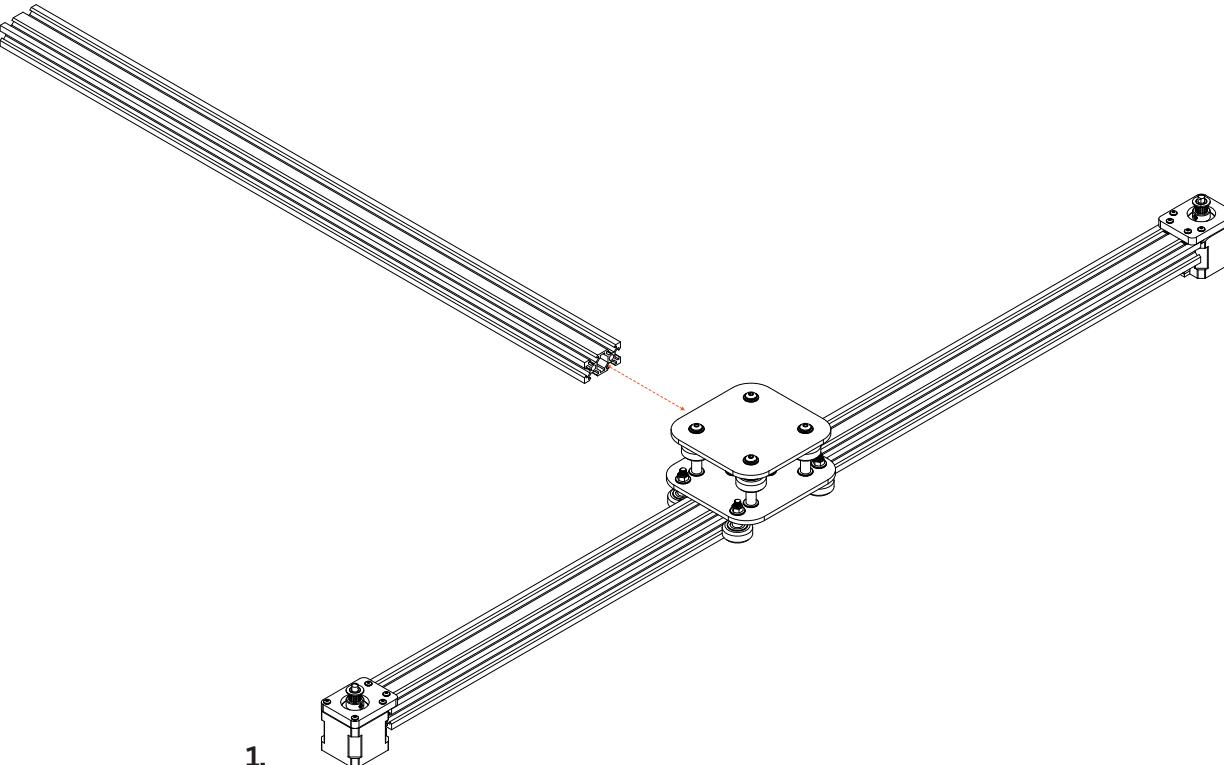
1. First, slide the profile onto the V-slot wheels of the carriage.
2. Next, adjust the position of the V-slot wheels to bring the profile closer to the carriage, then tighten the fasteners securely to ensure optimal hold.

5.

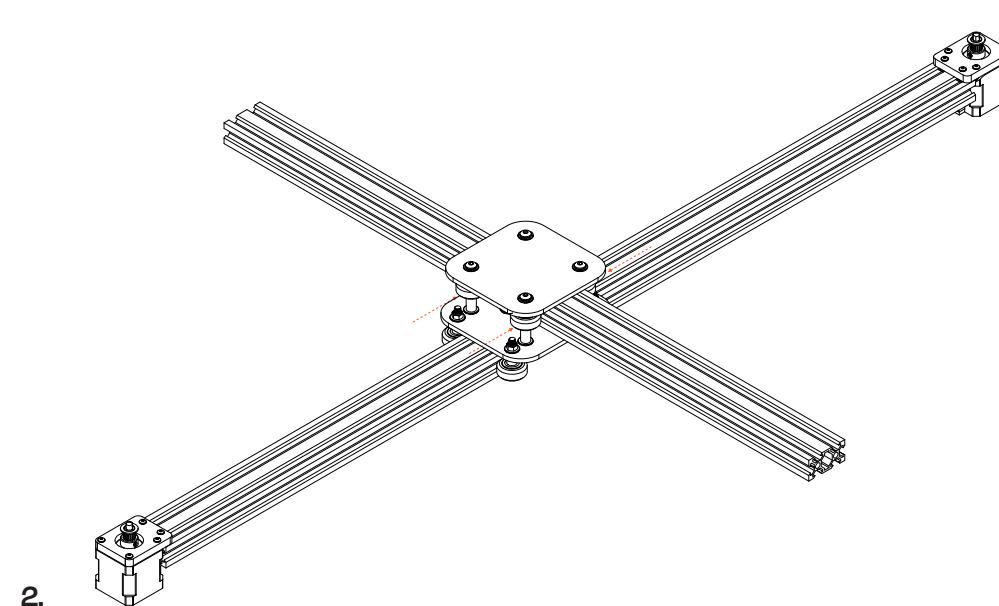


1. First, position the plate on the Nema 17 motor, aligning the mounting holes. Then secure the plate using the provided screws, tightening them firmly.
2. Next, insert two screws into the remaining holes in the plate, and then thread on the corresponding T-nuts. Lightly tighten the T-nuts to hold the assembly in place.
3. The Nema 17 motors are now attached to the plates.
4. Then, position the two motor blocks at each end of the profile. Tighten the T-nuts firmly to secure the blocks to the profile.
5. The X-axis is now ready.

6.

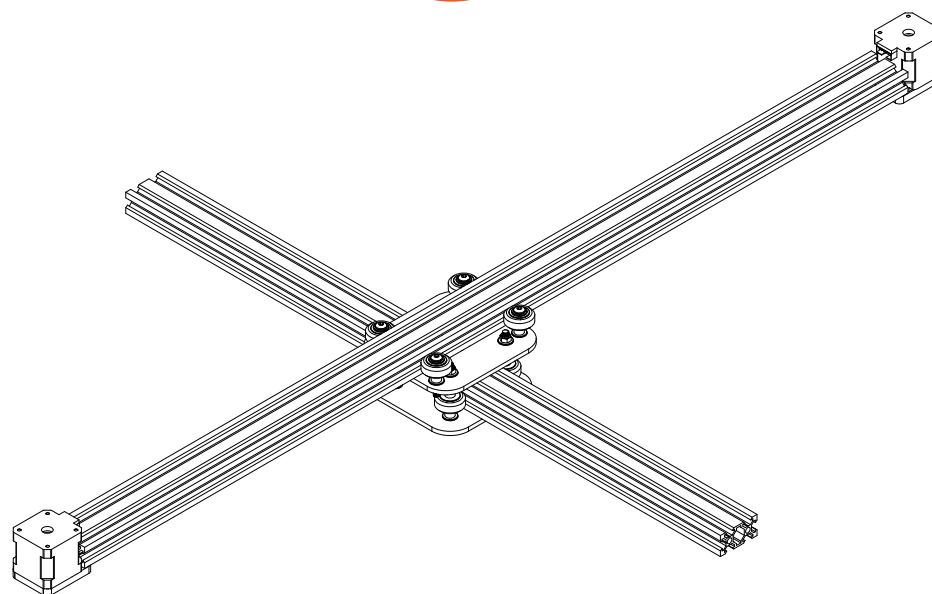
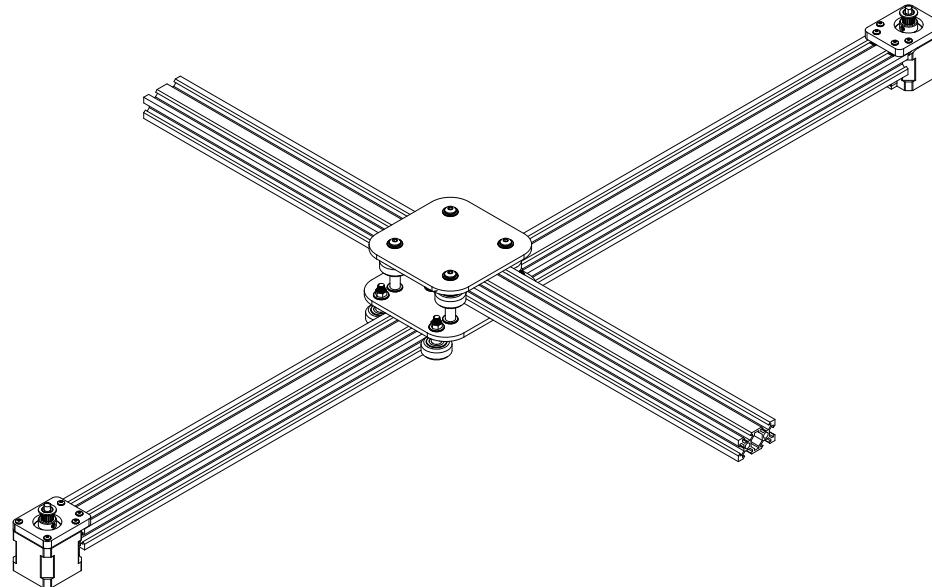


Profile
Y-Axis
20x40



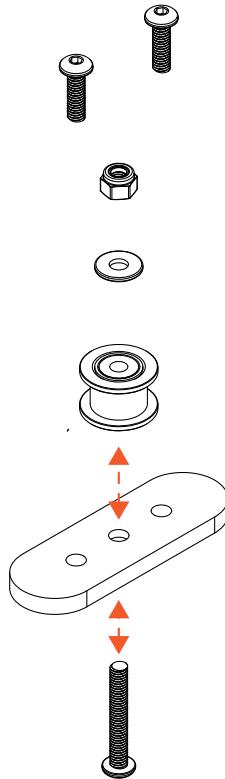
1. First, slide the profile onto the V-slot wheels of the carriage.
2. Next, adjust the position of the V-slot wheels to bring the profile closer to the carriage, then tighten the fasteners securely to ensure optimal hold.

7.

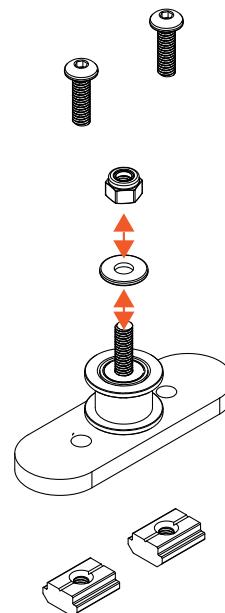


Reverse the structure.

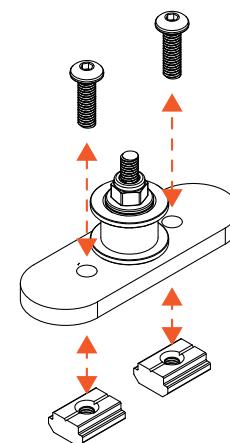
8.



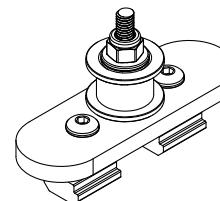
1.



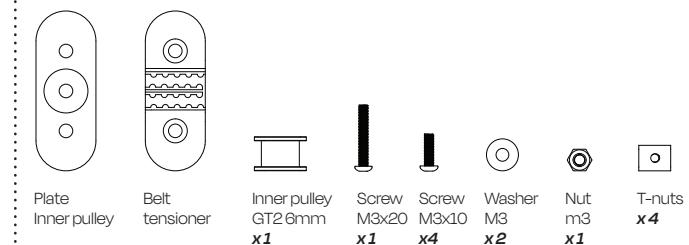
2.



3.



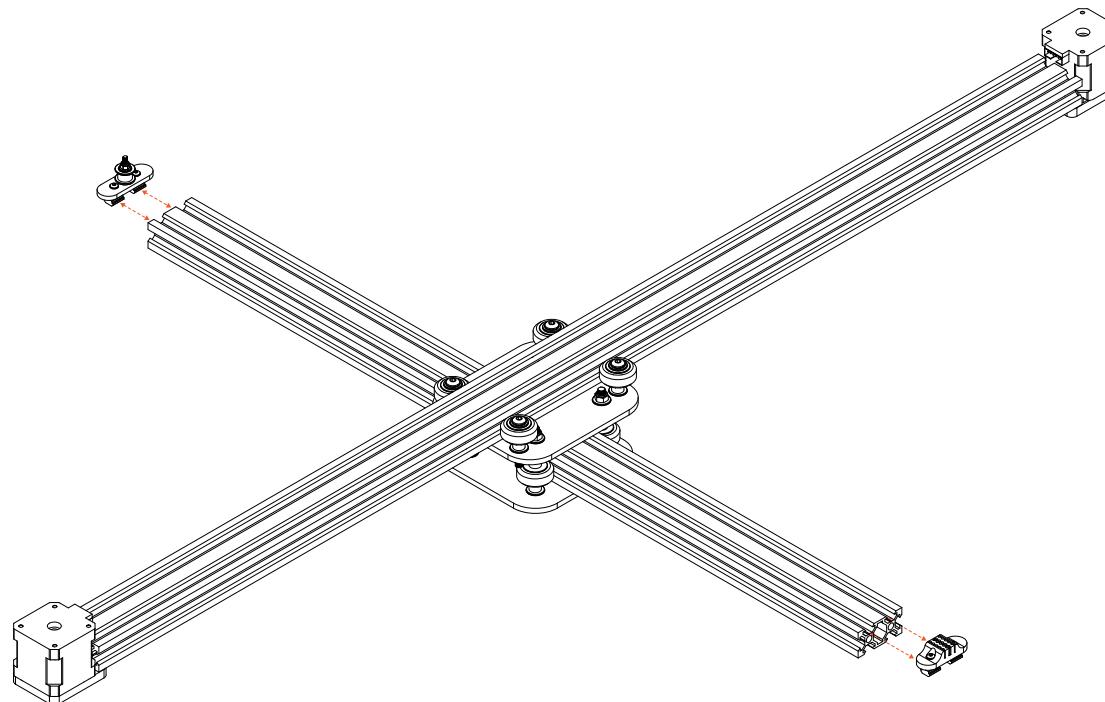
4.



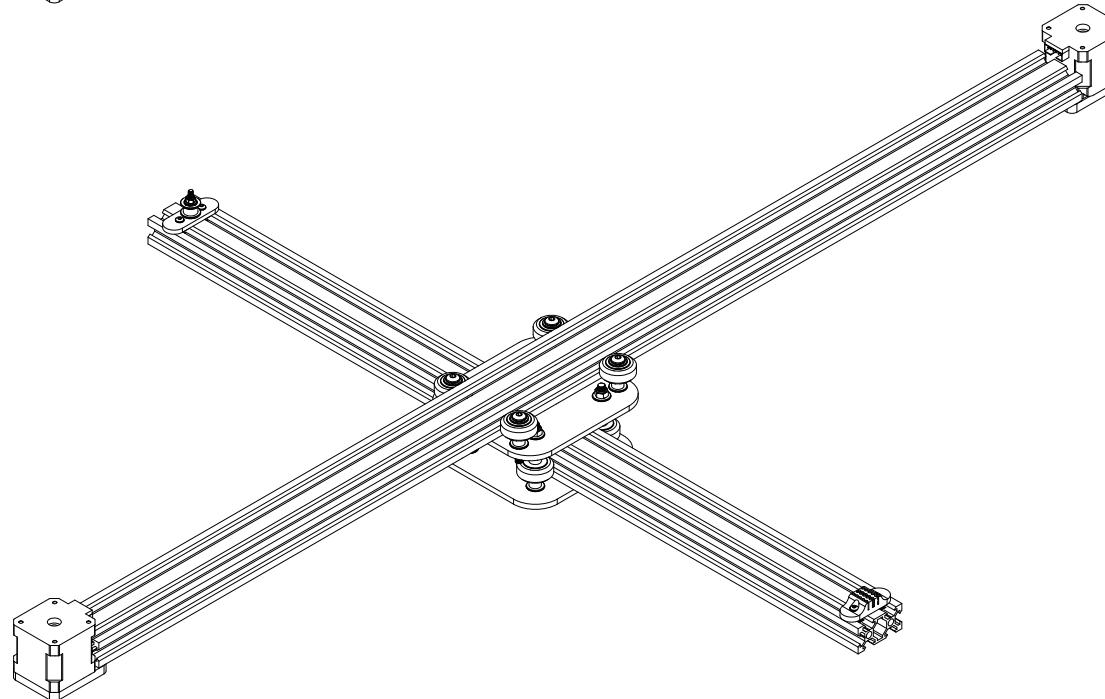
1. Insert the screw into the plate, and then slide the idler pulley onto the protruding threaded section.
2. Next, thread a washer onto the protruding threaded section, and then tighten firmly with a nut.
3. Then, insert two additional screws into the remaining holes in the plate, and then thread on the corresponding T-nuts. Lightly tighten the T-nuts to hold the assembly in place.
4. The Belt tensioner and idler system is now assembled. Finally, tighten the T-nuts securely to ensure optimal hold.

9.

1.

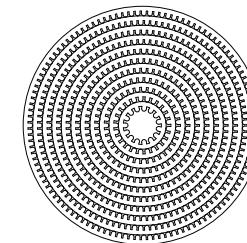
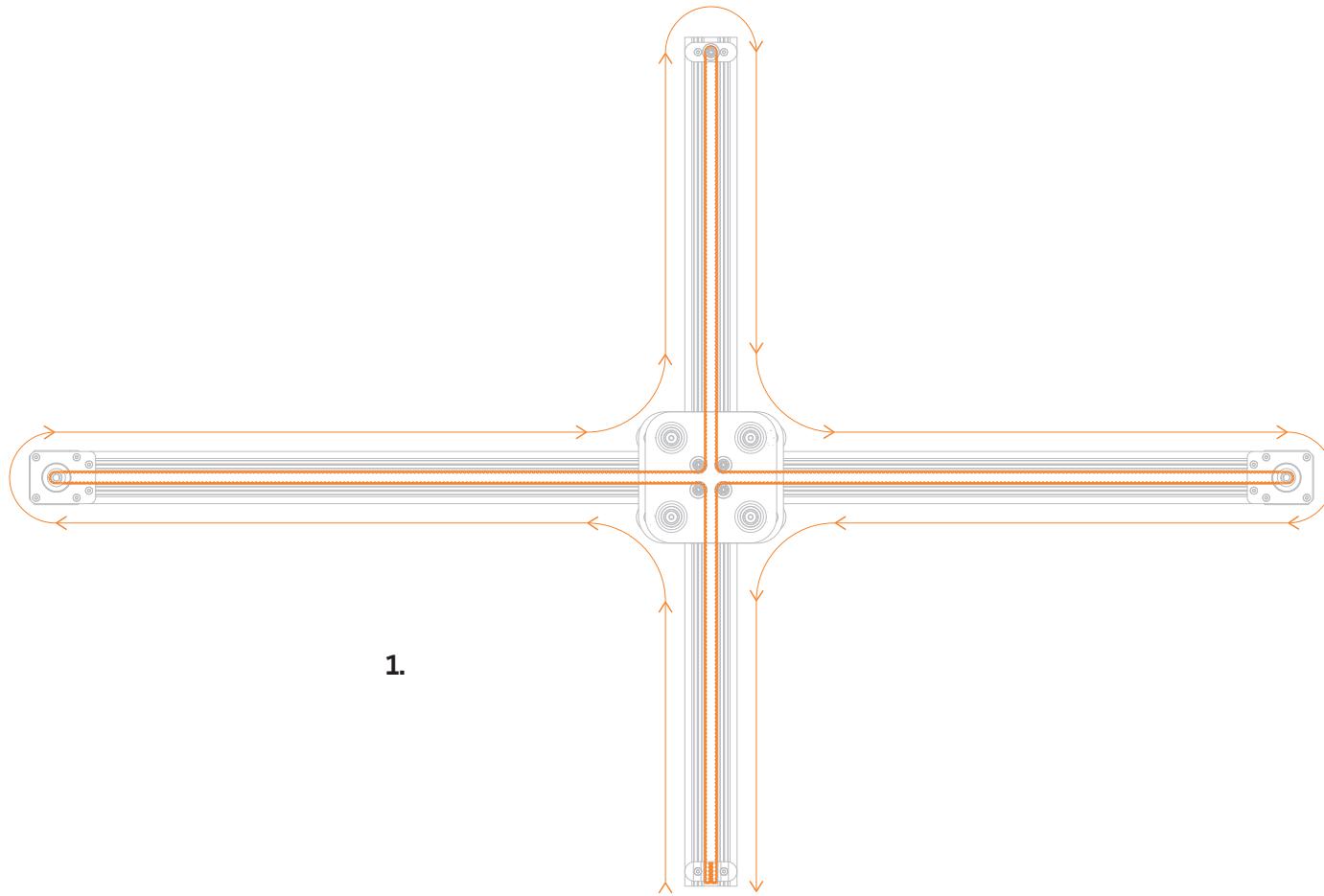


2.



1. Slide the two components to each end of the profile and fully tighten the T-nuts. First, position the two components at each end. Firmly tighten the T-nuts to secure the components to the profile.
2. The Y-axis is now assembled.

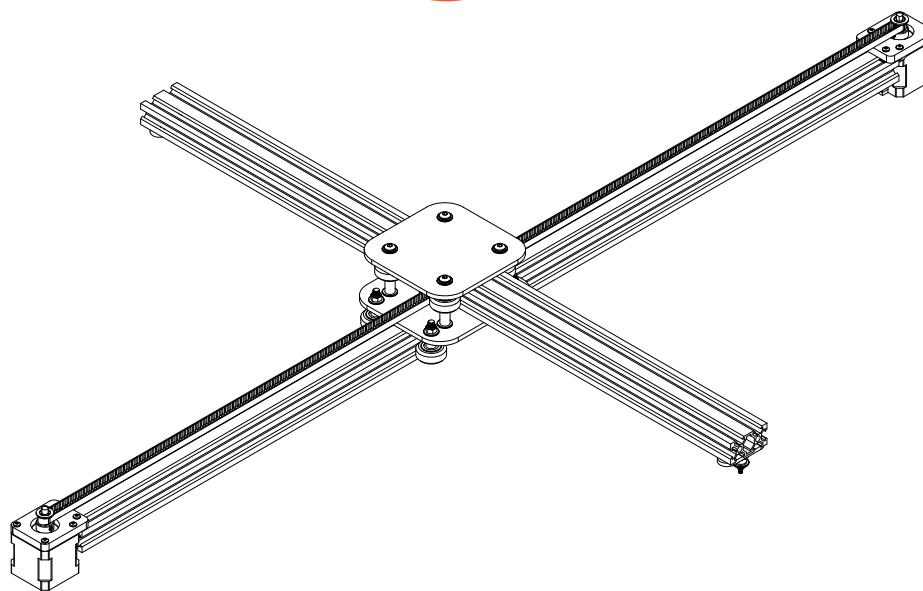
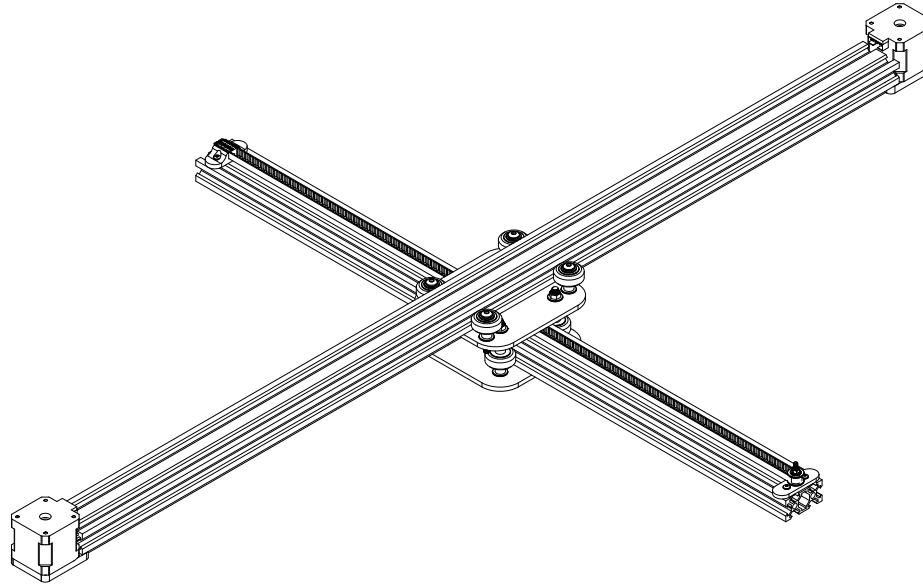
10.



Belt GT2 6mm 5m

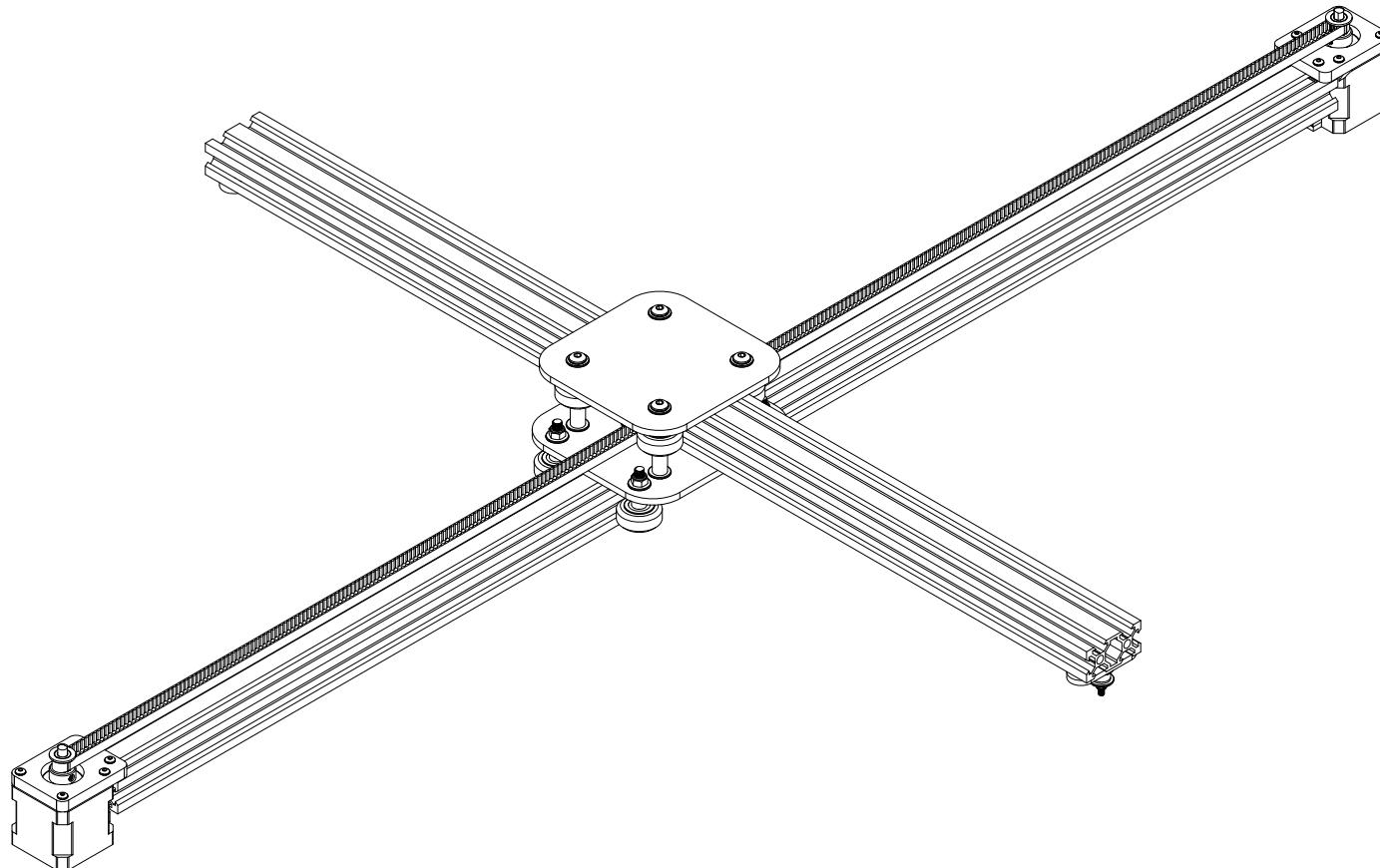
1. First, install the belt according to the provided diagram. Ensure that the belt is correctly wrapped around the pulleys.
2. Next, adjust the belt tension by moving the tensioner in the appropriate direction (as indicated on the diagram). Use a suitable wrench to tighten the tensioner once optimal tension is achieved. The tension should be sufficient to prevent belt slippage but not excessive enough to damage the bearings.

11.



Reverse the structure.

12.



The mechanical structure is ready.

CONTROLLER ASSEMBLY



Screw
M3x20
x4



Nut
M3
x4



Heatsinks
x2



Driver
A4988
x2

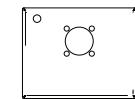


Fan
30x30
5v

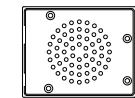
PARTS TO 3D PRINT



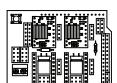
Reset
button



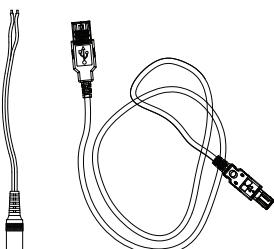
Top of the electronic
component housing



Bottom of the elec-
tronic component
housing



CNC Shield V3

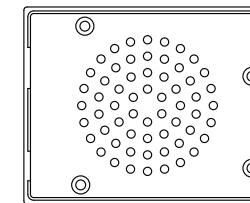


Arduino Uno

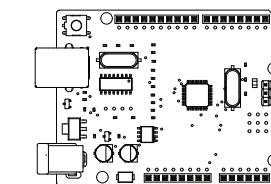
DC 12V
Adapter

USB-B cable

1.

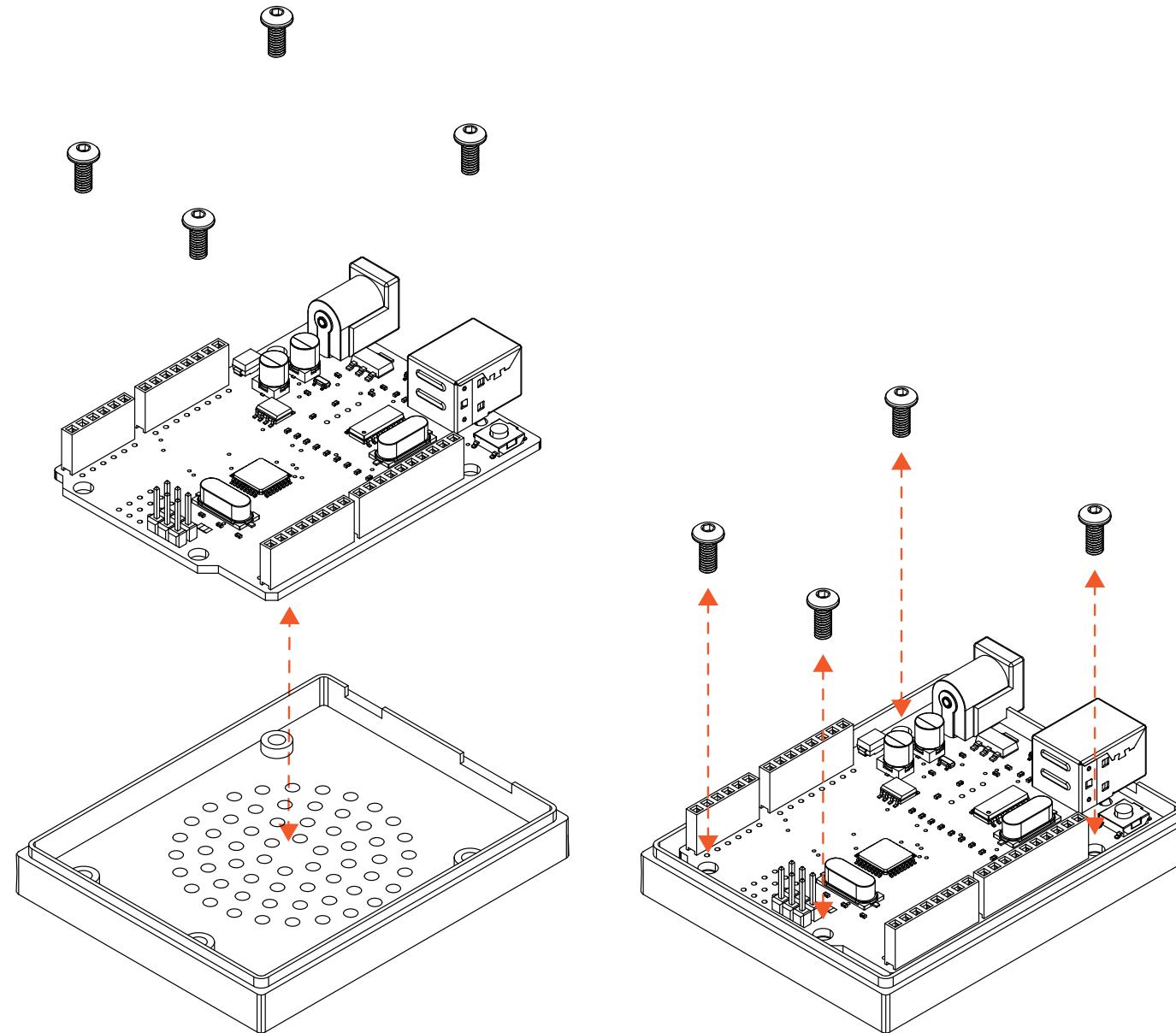


Bottom of the
electronic component
housing



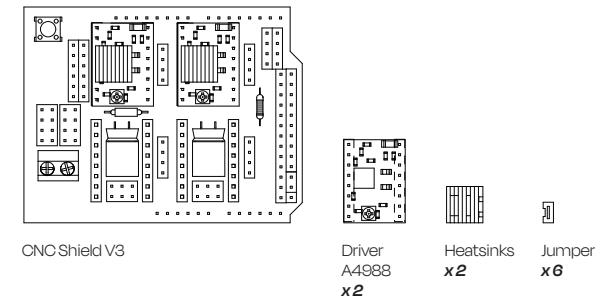
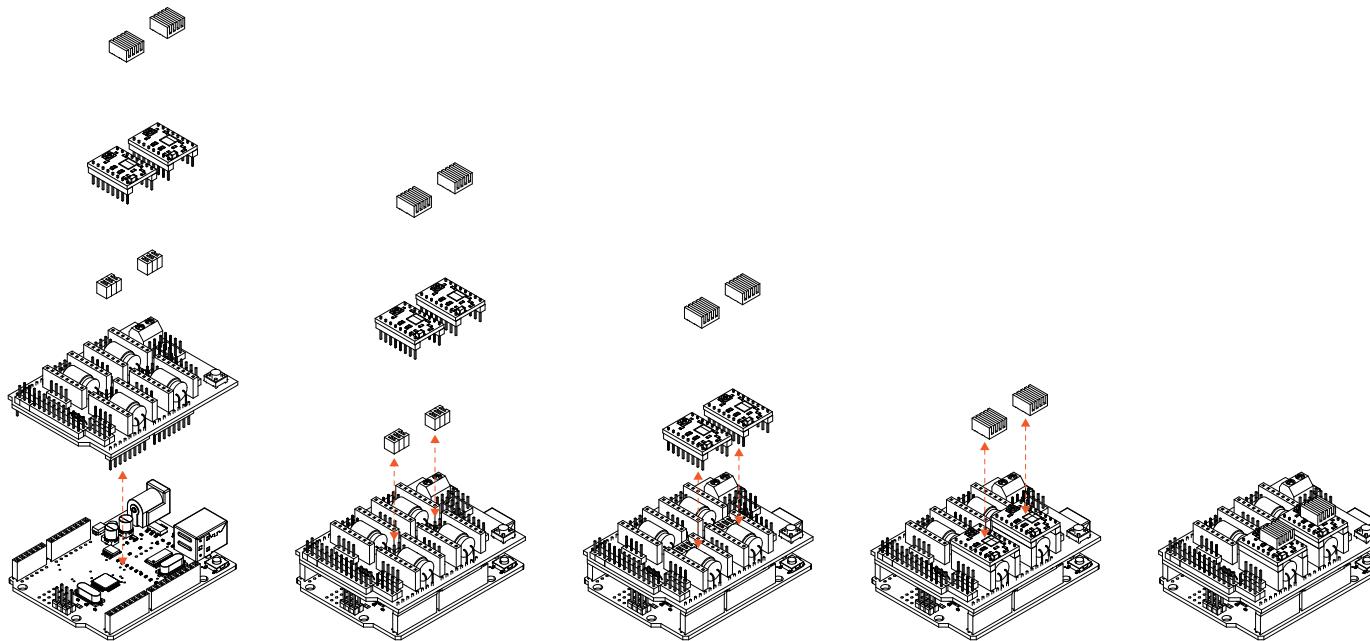
Arduino Uno

Screw
M3x10
x4



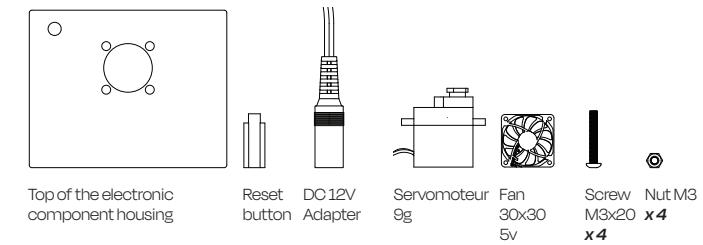
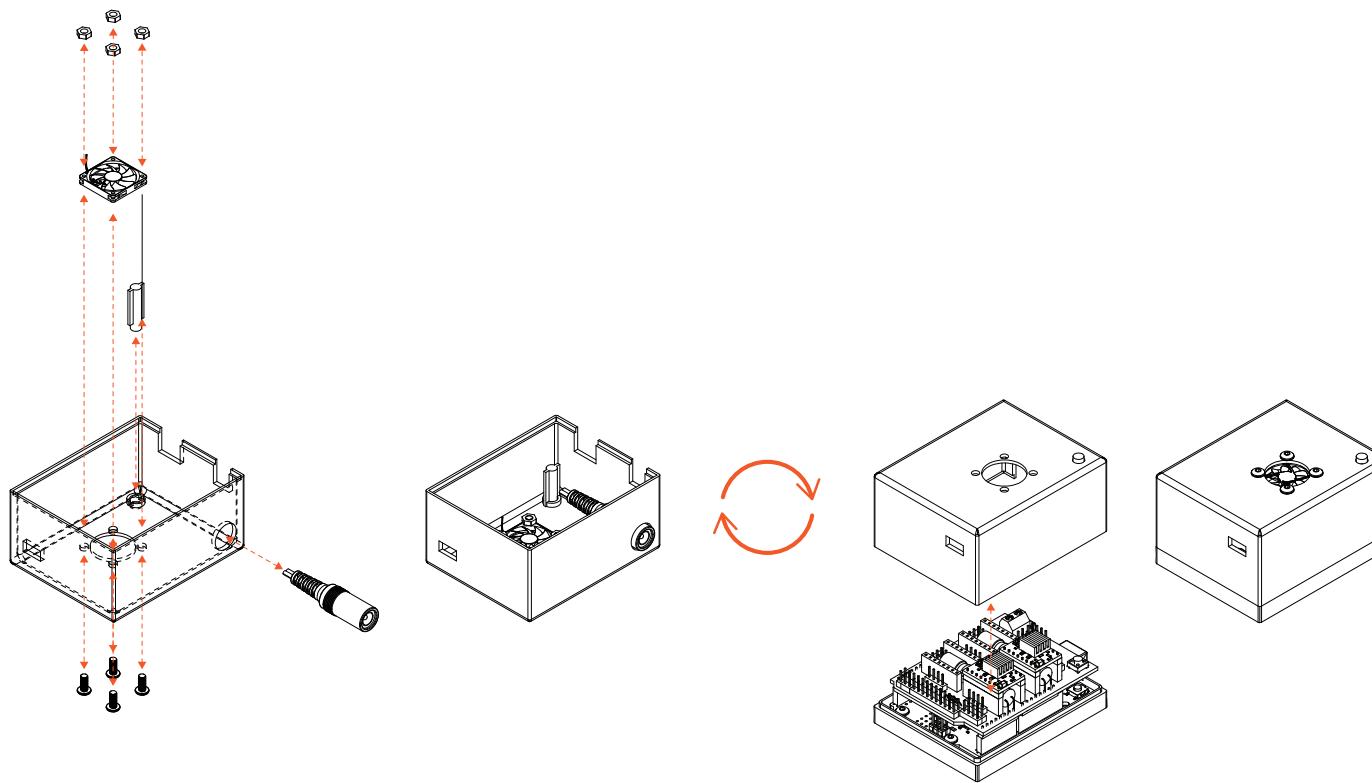
1. Position the Arduino Uno board on the plate, aligning the mounting holes.
2. Then, secure the board using the provided screws, tightening them firmly but not excessively.

2.



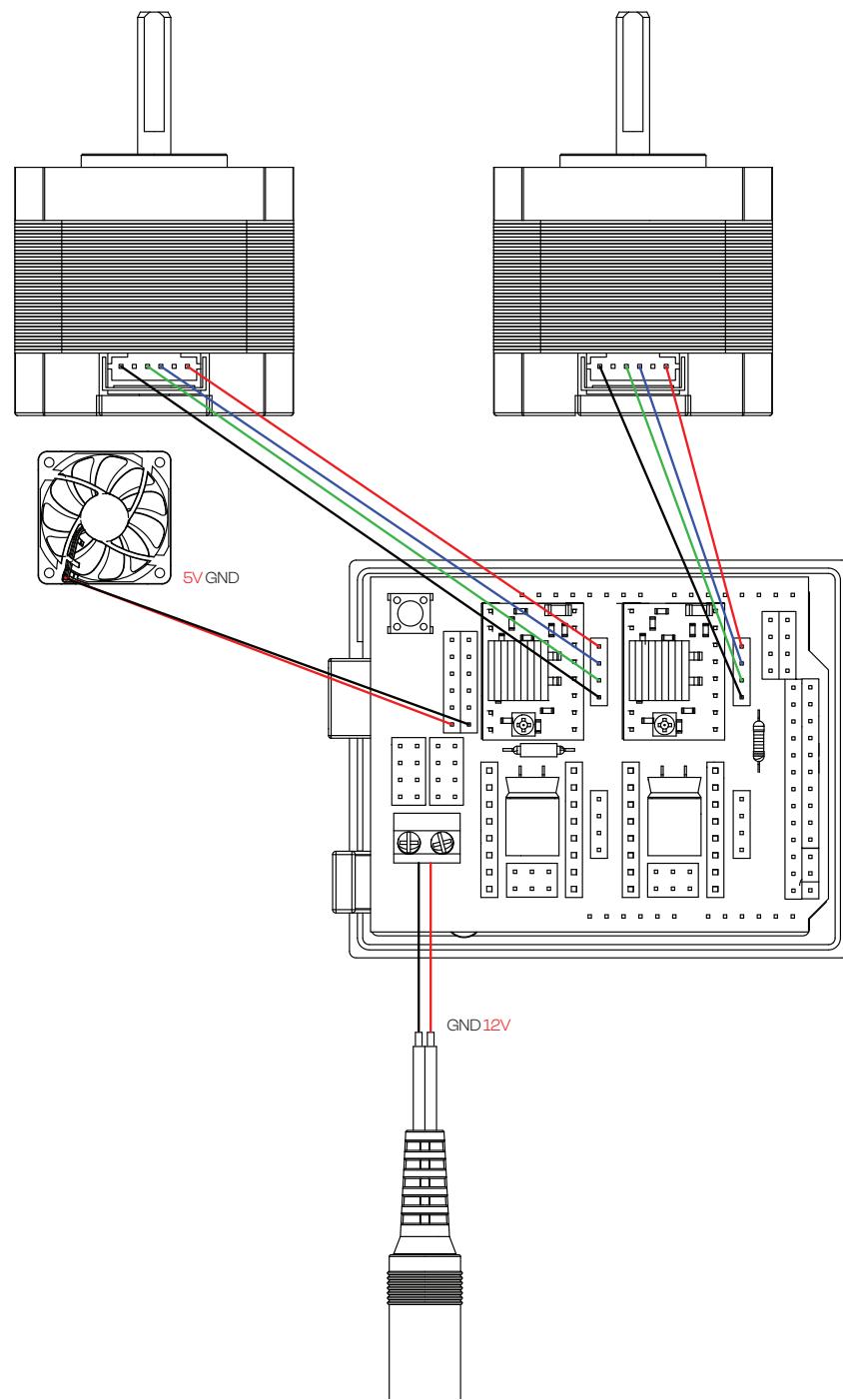
1. Align the CNC Shield with the Arduino Uno board, ensuring that the pins match up perfectly.
2. Insert the jumpers onto the Shield.
3. Insert the motor drivers into the designated slots on the Shield.
4. Attach the heatsinks to the chips.
5. The controller is assembled.

3.



1. Insert the power adapter, reset button, and fan into their respective slots on the enclosure.
2. Flip the enclosure over.
3. Secure the enclosure to the controller board.
4. The controller is ready.

4.



Schematic of the circuit