

Dual Syringe tool



The standard tool uses two snap motors to extrude material. The motors are not in-line with the syringe, rather they transmit power via two gears to a plunger within the syringe. The bays of the tool are labeled bay 0 and bay 1, and the motors are plugged into ports 4 and 5 of the snap motor respectively.

Assembly Instructions

Pictorial representations are in development. NOTE: assembly steps are almost identical for the single syringe displacement tool, except that it has one of every part in the drive system rather than two. See the picture for further comparison.

Assemble

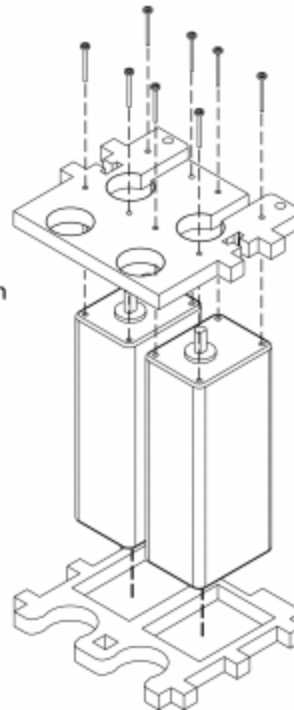
1. Screw two [SM062] motors to the **drive interface plate**, ensuring that the flat side of the motor shaft faces through the plates long cutout.

- Slide the **syringe holder plate** over the motors

Deposition Tool | Assembly | 1.2

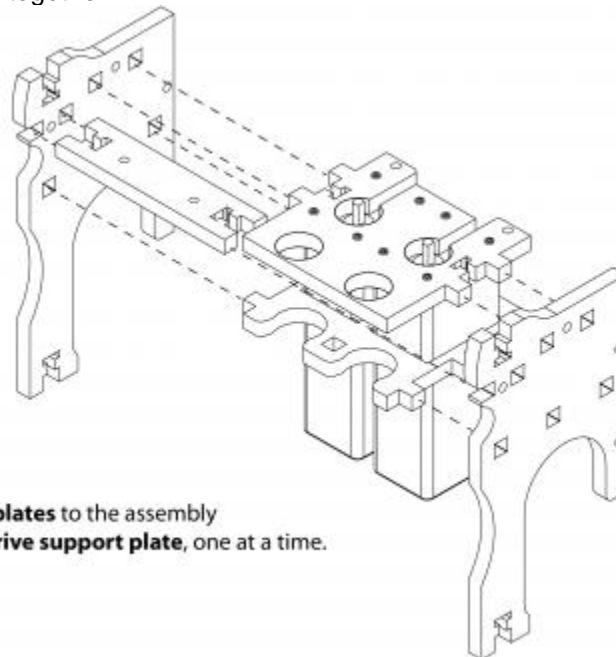
Attach two **SM062 Snap motors** to the **drive interface plate**, ensuring that the flat side of the shaft is aligned with the rear.

Slide the **syringe holder plate** over the motors.



- Snap the plates into one **side plate**
- Snap the **lower drive support plate** into that side
- Snap the other side together

Deposition Tool | Assembly | 3-5



Attach the **side plates** to the assembly and the **lower drive support plate**, one at a time.

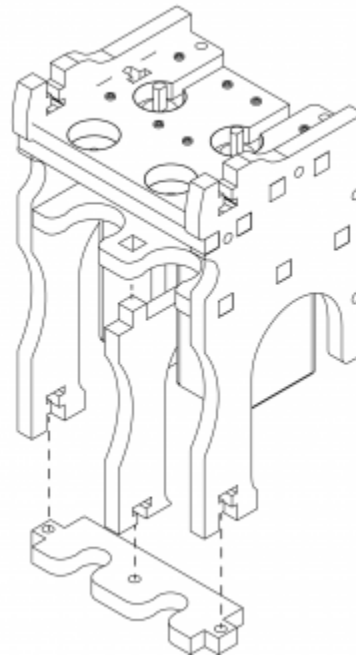
- Place the **syringe support plate** into the **syringe holder plate**

7. Attach the **bottom plate** to the support and side plates

Deposition Tool | Assembly | 6,7

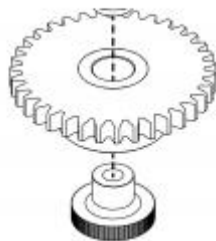
Attach the **syringe support plate** to the **syringe holder plate**

Attach the **bottom plate** to the **side plates** and the **syringe support plate**



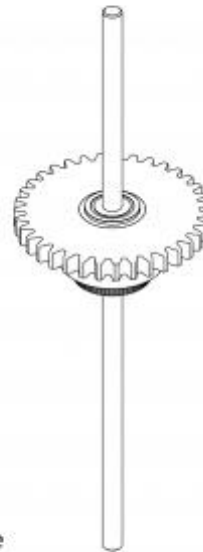
8. 2x Put a [Round Knurled Thumb Nut, M3 screw] inside [6mm bore, 28mm pitch dia. 16mm hub dia. Gear] and tighten the set screw
9. Screw a cut length of threaded rod through the gears + nuts.

Deposition Tool | Assembly | 8-10



For each of two drive assemblies attach the **M3 knurled thumbscrew** to the **6 mm bore drive shaft gear**. Tighten the set screws on the gears.

Screw the assembly onto ~10 cm of the M3 threaded drive shaft.

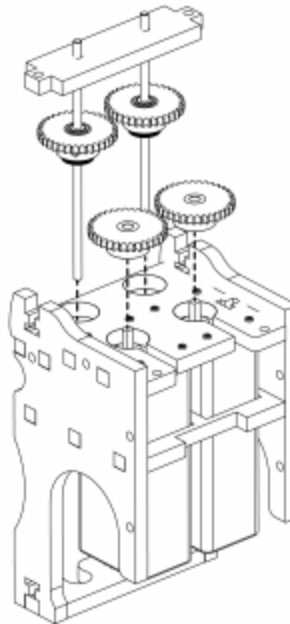


10. Put the drive shaft assemblies into the drive interface plate
11. Attach the [4mm bore, 28mm pitch dia. 16mm hub dia. gears] to the snap motors.

12. Slide the **upper drive support plate** over the shafts and screw into place.

Deposition Tool Assembly | 11-13

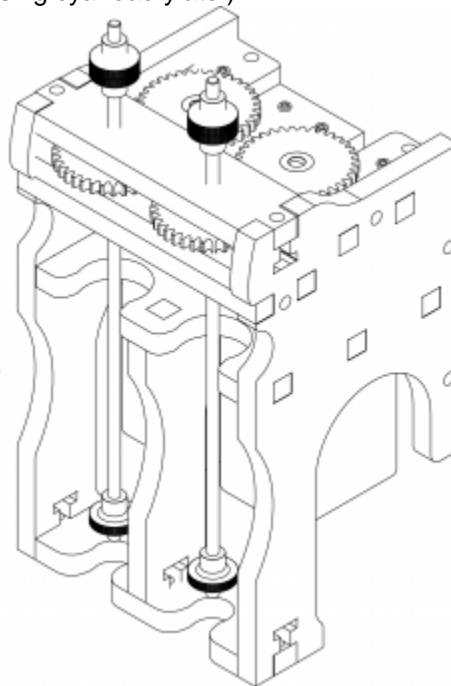
1. Attach the **4mm bore gears** to the snap motor shafts, tightening the set screws against the flat side of the shaft
2. Slide the drive shafts with drive gear assemblies into the **upper drive support plate** and then into the **drive interface plate**



13. Put 2 nuts on the top of each length of rod and tighten so they are locked
14. Put 1 nut on the bottom of each rod with enough space to screw one exactly one more nut.
(Optional: Glue the nut in place using cyanoacrylate.)

Deposition Tool Assembly | 14-15

1. Attach two **M3 thumbscrews** opposing each other at the top of each shaft, locking them together.
2. Attach another **M3 thumbscrew** 5 mm above the base of each shaft, gluing in place if desired

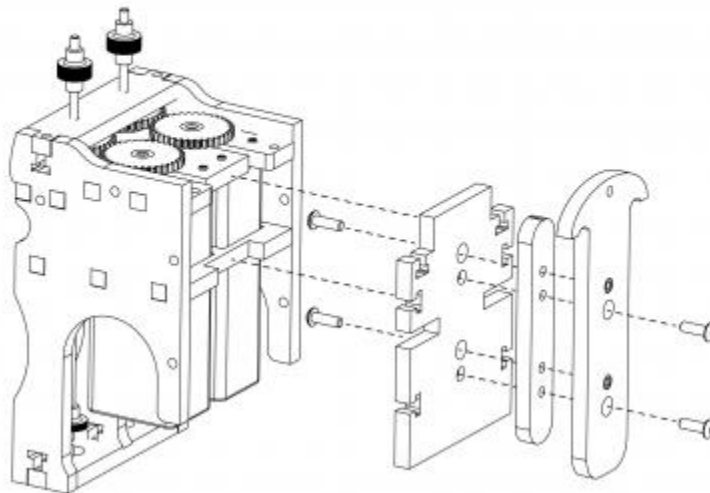


15. Screw the **tool mount inner plate** to the **Tool mount outer plate**
16. Screw the **Tool back plate** to the tool assembly

17. Screw the tool mount plates to the **Tool mount back plate**

Deposition Tool | Prep the parts | 16-18

Screw **Tool mount outer plate** to **Tool mount inner plate**, then attach both to **Tool back plate**
Screw **Tool back plate** to rest of assembly.



Photos



drive interface plate



syringe holder plate



side plate



lower drive support plate



syringe support plate



bottom plate



back plate



upper drive support plate