

3D printable translational stage for LaVision Light Sheet Microscope

In this technical note we present a fully 3D printable linear stage designed to give the researchers a tool to acquire equally spaced images using the LaVision Light sheet Microscope. The pitch of the M2 thread measures 0.4 mm therefore, rotational movements of half or even a quarter of revolution of the screw placed on the middle will be linear increments of 200 and 100 μm respectively. The range of movement of the platform is 36 mm.

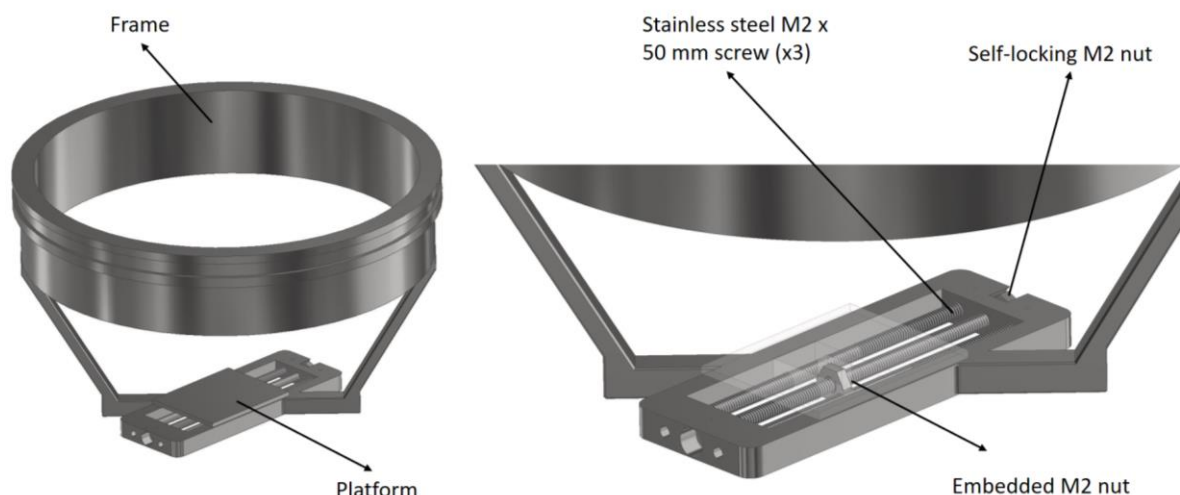


Figure 1: Design of the stage on the CAD software.

Bill of materials

Part	Quantity	Reference
Custom frame	1	STL/STEP file
Platform	1	STL/STEP file
M2 x 50 mm screws	3	https://www.amazon.co.uk/sourcingmap-Stainless-Steel-Phillips-Screws/dp/B012TDJE3O/ref=asc_df_B012TDJE3O/?tag=googshopuk-21&linkCode=df0&hvadid=272054178218&hvpos=&hvnetw=g&hvrnd=16044810879815880919&hvpone=&hvptwo=&hvqmt=&hvdev=c&hvdvcmdl=&hvlocint=&hvlocphy=9045999&hvtargid=pla-319427555651&pssc=1
M2 nut	1	https://uk.rs-online.com/web/p/hex-nuts/2484551/ https://www.amazon.co.uk/Stainless-Self-locking-Anti-loose-Locknut-M2-100Pcs/dp/B075V8KNWY/ref=sr_1_3_sspa?dchild=1&keywords=M2+self+locking+nut&qid=1601645287&sr=8-3-spons&pssc=1&smid=A5QX2SUPA7LK7&spLa=ZW5jcmlwdGVkUXVhbGlmaWVyPUFNQ1BIWFFYMIzV0UmZW5jcmlwdGVkSWQ9QTA1NDg0g1NDQzVjdXTTdXRlpXWkNOJmVuY3J5cHRlZEFkSWQ9QTA1NDg0MjEzVThRSzRXQk11UjMyJndpZGdlE5hbWU9c3BfYXRmJmFjdGlvbj1jbGlja1JlZGlyZWNOJmRvTm90TG9nQ2xpY2s9dHJlZQ==
M2 self-locking nut	1	

Assembly instructions

This device has been printed using a Form 3 3D printer filled with clear V4 resin. It has been printed using the standard settings (100 μm resolution).

- 1- Remove the support material of both pieces.
- 2- Use a hand tap set M2 size to thread the holes for the screws.



Figure 3: M2 tap hand tool (left) and Threaded M2 holes (right).

- 3- Insert the two M2 screws that act as a guides while you place the platform holes on the path of the screws.
- 4- Now insert the embedded M2 nut and insert the center M2 screw threading inside the embedded nut.
- 5- Insert the M2 self-locking nut on the other side of the central screw, this nut limits the axial displacement of the screw. The nut has to be threaded on the nylon side. Alternatively, a regular M2 nut can be used with thread locking glue inside the thread (RS Components 693-848).

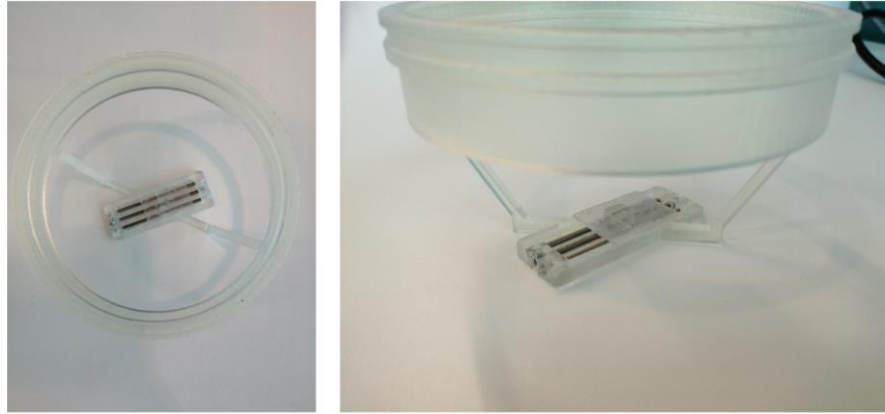


Figure 2: Completed assembly.