Disk Assembly Guideline

This document is a detailed guide for the assembly of the mechanical parts of the disk system.

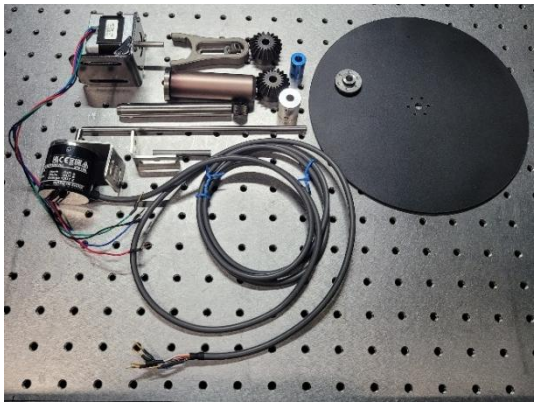
The approximate build time for this setup is 1 hour.

Please refer to the part list for mechanical components for assembly, and you'll also need the following tools:

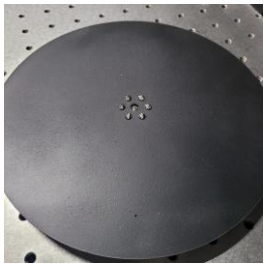
- 2.5 mm Allen wrench (for M5 hex socket cap screws)
- 1/4-inch Allen wrench (for 1/4"-20 socket bolts)
- 0.05-inch and 1/16-inch Allen wrench (for securing set screws on shafts or pulleys)

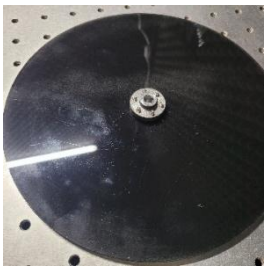
Be sure to use the correct wrench size for each bolt and fastener to prevent damage.

Instructions

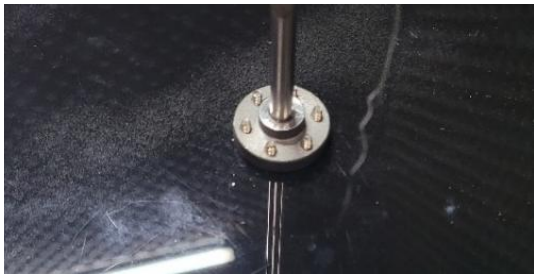


1. Shown here is a photo of all prepared parts. Some parts in the picture may already be pre-assembled, including the Thorlabs components, the encoder frame, and the motor frame.

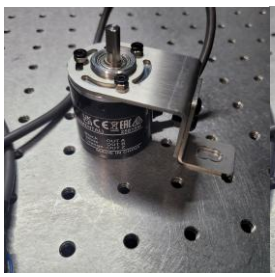


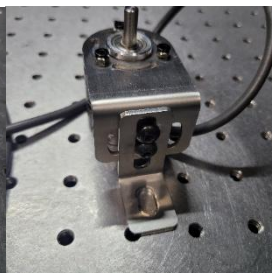


2. Attach the mounting hub (4) to the center of the acrylic disk (1) using the provided set screws.



3. Insert the aluminum shaft (2) into the mounting hub (4). Ensure that the shaft does not protrude above the disk surface.



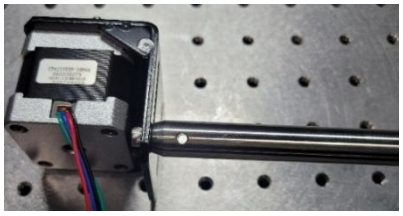
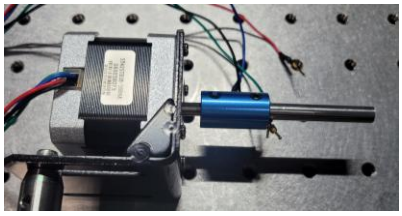
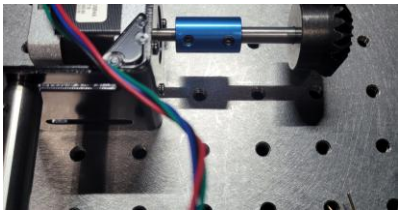


4. Assemble the encoder (6) and encoder bracket (8), then mount the assembly to the corner bracket (9) with M5 Nut and Bolt (17,18). Ensure that the bracket and the encoder surface are parallel to the ground, as shown in the reference photo.

5. Assemble the stepper motor (5) to the motor mount bracket (7) and attach it to the optical post (13).

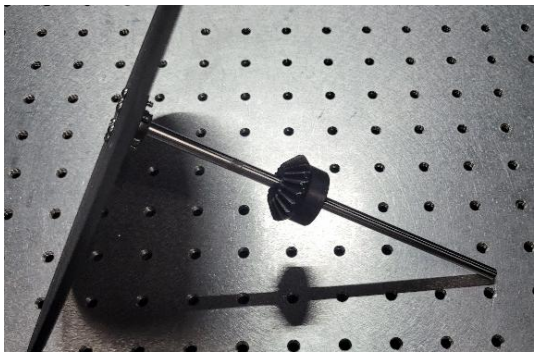
6. Connect the aluminum shaft (3) to the stepper motor with a shaft coupler (10).

7. Attach the bevel gear (12) to the end of the aluminum shaft (3) in Step 6.

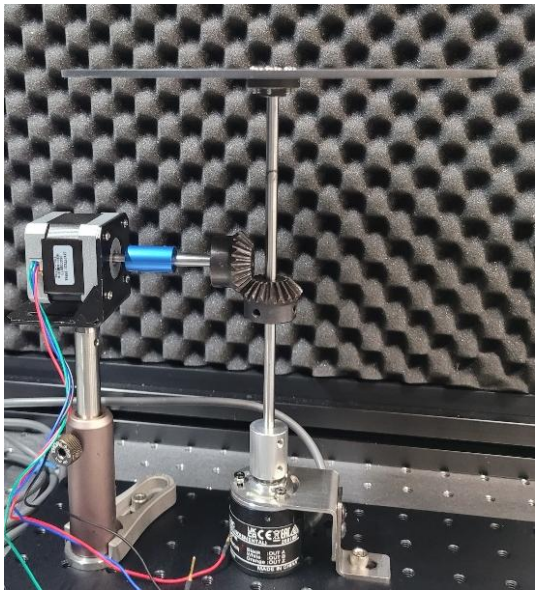




8. Mount the assembly from Step 7 using the Thorlabs components (14–16).

9. Fix the encoder assembly (from Step 4) to the base with 1/4-inch bolt (19).



10. Attach a bevel gear (12) to the aluminum shaft (2) mounted on the acrylic disk (1).
Note: The position can be adjusted as needed to match your experimental setup.



11. Use a shaft coupler (11) to connect the shaft of the encoder assembly (Step 9) with the shaft of the acrylic disk assembly (Step 10).

12. Fix the motor assembly (Step 8) at an appropriate location. Ensure the mounting position allows stable operation and proper meshing of the bevel gears (12).