

Sputtering SOP

Before starting the sputtering process, ensure that:

- the gauges are properly loaded in the jig, with the correct orientation.
- the sputterer gun is loaded with the correct target material (nickel).

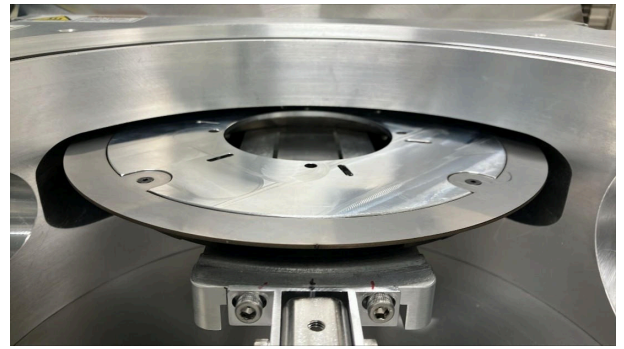
1. Switch off loading bay vacuum pump (load lock switch)



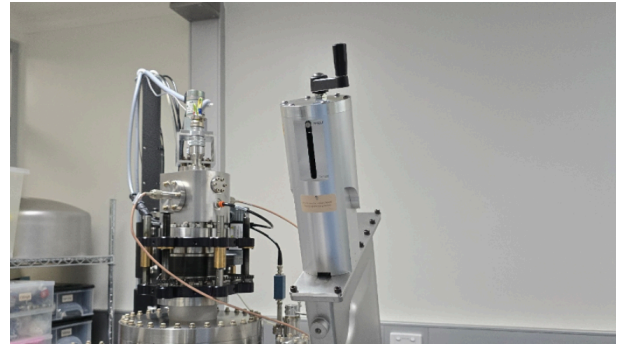
2. Wait until the gauge reads 760 Torr
3. Load the jig by lining up the holder with the hole for free movement of the arm



4. Check if the jig fits into the gap between the two chambers, but note that it will be stopped by the interlock that separates the chambers.



5. Close the loading bay lid
6. Switch on the vacuum pump (load lock switch)
7. Wait until the gauge reads $\sim 10^{-5}$ Torr
8. Open the interlock between the two chambers

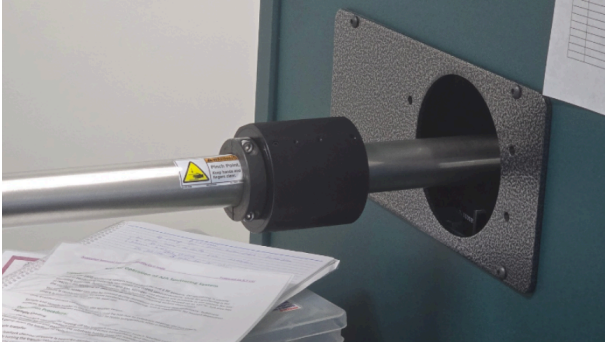


9. Use the knob to manually rotate and adjust the height of the plate inside the main chamber while looking through the viewport to ensure the plate is aligned to receive the loading arm

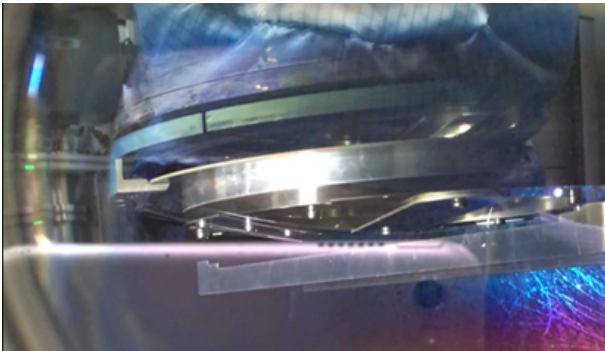


10. Use the magnetic sleeve to position the plate inside the sputtering chamber. Do

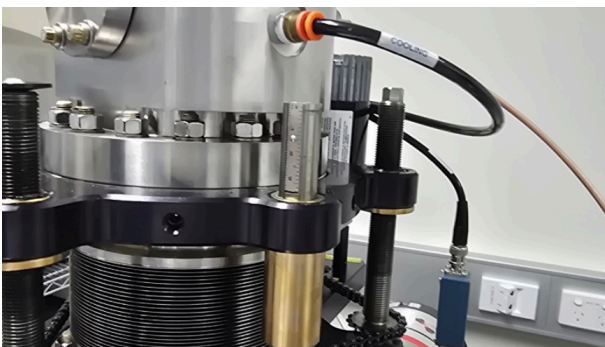
it carefully and, if needed, refine the adjustment made in the previous step.



11. Push the jig up to the final position. The jig outside support disc should engage with the lugs within the sample holder.



12. Use the joystick to push the plate up until it is caught by the revolving holder.
13. Once the plate is caught, move the arm out of the way.
14. Adjust the sputterer height pushing the joystick down until the black mark is shown.



15. Close the interlock between the two chambers
16. **Sputtering settings:**

- A “sub bias” cleaning is usually required before starting the sputtering process.

- Deposition power, pressure and time: 150 W, 3 mTorr, 9 min 30 sec.

- Chamber gas and flow rate: Argon, 60 STPT.

- Z-translation distance and rotation rate: 40 mm from top, 20 rpm.

1. Stop the spinning of the plate
2. Open the divider between the two chambers
3. Catch the plate with the arm and bring it back to the loading position
4. Close the divider between the two chambers
5. Switch off the vacuum pump
6. Wait until the gauge reads 760 Torr
7. gjhg