

## Denton Sputtering System Instructions

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**Location:** W6-024

**Primary Trainer:** Scott Munro (587-879-1517, [smunro@ualberta.ca](mailto:smunro@ualberta.ca))

**Secondary Trainer:** Gayle Hatchard (780-916-9672, [emmah@ualberta.ca](mailto:emmah@ualberta.ca))

### OVERVIEW

The Denton Desk II is a Au sputter deposition system, available to users who require a conductive film for SEM imaging, or require a thin gold film on vacuum compatible substrates.

### OPERATING INSTRUCTIONS

1. The system will be vented to atmosphere and powered off. Begin by loading the sample(s) on pedestal, either mounted on an SEM stub, or by placing the sample directly on the stage.
2. Close the lid.
3. Turn on the main power switch, located on the right hand side of the system.
4. Let the chamber pump down to a minimum pressure of 50mT. Pumping should take ~5min, but may be longer.
5. Once the base pressure is reached, push the **Sputter** button to start the gas flow. The pressure will spike, and the button will turn off. Allow the pressure to reach 50mT again, and push the **Sputter** button a second time. The sputter button should be lit, repeat as needed until it does.

6. With the gas now flowing, allow the chamber pressure to stabilize at 100mT. Set the timer to the desired deposition time. For SEM coating, 120s is typical. Deposition rate is ~8nm/min.
7. Once the pressure has stabilized at 100mT, push the **Timed Start** button to ignite the plasma and begin the deposition
8. The current setting should be in the range of 10-20mA. Adjust as required.
9. The sputter process will stop automatically once the timer reaches 0. Turn off the main power switch to stop the pump and begin venting. The chamber will vent in ~10s. Do not force the lid; wait until it is fully vented to atmosphere before opening.

## TROUBLESHOOTING

If the pump remains noisy or rattles for longer than ~10s after the initial power on and pumpdown step, and the pressure fails to drop, there is a leak in the system. Turn off the power and ensure the lid is seated properly, and the chamber is seated in the sealing groove.

An unstable current may indicate the base pressure of <50mT was not reached, or the gas flow is set incorrectly. Stop the plasma and allow the system to pump to the lowest pressure possible (should be 20-30mT at the lowest point, given enough time). Turn on the gas, and allow the pressure to stabilize at 100mT. If the flow is not at 100mT after several minutes, adjust the flow as required.

***If you encounter an unexpected error or require assistance please contact the primary or secondary trainer listed above. Should they not be available, please contact any staff member for assistance.***

## APPROVAL

**Qualified Trainer:** Scott Munro  
**Training Coordinator:** Stephanie Bozic