



# Temescal 1800 E- Beam Evaporator Operating Instructions for Manual Operation

**These instructions do not replace Staff Training,  
These are for reference by Staff-trained users.**

## **Temescal 1800 e-beam evaporator - instructions for manual operation**

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### **Loading sample and pumping down:**

1. Close HI-VAC and WAIT FOR 20 SECONDS.
2. Turn on VENT. Pressure should go up and stabilize. The temperature of the cryopump should stay at ~ 10.
3. When system is vented, you can lift the cover to open it. Turn off VENT.
4. Load the sample.
5. Close the top, and turn on ROUGH. Let rough until the Vacuum GAUGE reads  $1.5 \times 10^{-2}$ .
6. Turn off ROUGH.
7. Open HI-VAC. THERMOCOUPLE GAUGE will read  $1 \times 10^{-3}$ . After 1 minute pumping push the EMIS button on the HIGH VACUUM GAUGE to turn on the B-A (Ion) gauge to read high vacuum. Should be at  $9 \times 10^{-5}$  torr.
8. Wait for the pressure to be  $6 \times 10^{-6}$  torr or lower. The system vacuum is now ready.

### **Evaporation:**

1. Turn on HI VOLTAGE. Big Breaker on front of the power supply. Then push High voltage button for 2 seconds on front of CV-8 control panel.
2. Set up the Inficon thickness monitor (Z-ratio and Density and Zero it)
3. Turn FILAMENT on (red button). Slowly increase current until the beam is visible.
4. Slowly increase the current to the desired setting. The pressure in the chamber will rise. If it goes above  $1 \times 10^{-5}$  torr, Wait for the pressure to go down.
5. Turn the filament up until the inficon reads the desired rate.
6. To evaporate on the sample, open the Shutter switch.
7. After desired thickness is reached, close the shutter switch.
9. Bring the current down to 0. If you need to evaporate another metal, wait for couple of minutes to cool the crucible, then move to the next crucible and repeat steps 2 through 6.
10. Turn off HI VOLTAGE and FILAMENT (square orange buttons) and wait for ~ 5 minutes for the crucible to cool down.

### **Venting the chamber:**

1. Close HI-VAC and WAIT FOR 20 SECONDS.
2. Turn on VENT. Pressure should go up and stabilize. The temperature of the cryopump should stay at ~ 10.
3. When system is vented, you can lift the cover to open it. Turn off VENT.
4. Unload the sample. Remove crucibles that normally do not stay inside.
5. Close the top, and turn on ROUGH. Let rough until the Vacuum GAUGE reads  $1.5 \times 10^{-2}$ .
6. Turn off ROUGH.
7. Open HI-VAC. THERMOCOUPLE GAUGE will read  $1 \times 10^{-3}$ . After 1 minute pumping push the EMIS button on the HIGH VACUUM GAUGE to turn on the B-A (Ion) gauge to read high vacuum. Should be at  $9 \times 10^{-5}$  torr.
8. FILL OUT THE LOGBOOK AND CLEAN AFTER YOURSELF.
9. Report any problems or unusual behavior to the staff immediately.