THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

University Research Facility in
Materials Characterization and
Device Fabrication
材料與器件中心實驗室

UMF Equipment – E-beam Deposition System

Denton Explorer

E-beam (electron beam) evaporation is a thermal evaporation process, which is one of the most common types of physical vapor deposition (PVD). E-beam evaporation provides for the direct transfer of a larger amount of energy into the source material, enabling the evaporation of metal and dielectric materials with very high melting temperatures. Therefore, it is possible to deposit materials that cannot be evaporated with standard resistive thermal evaporation. An additional benefit of e-beam evaporation is higher deposition rates than possible with either sputtering or resistive evaporation.

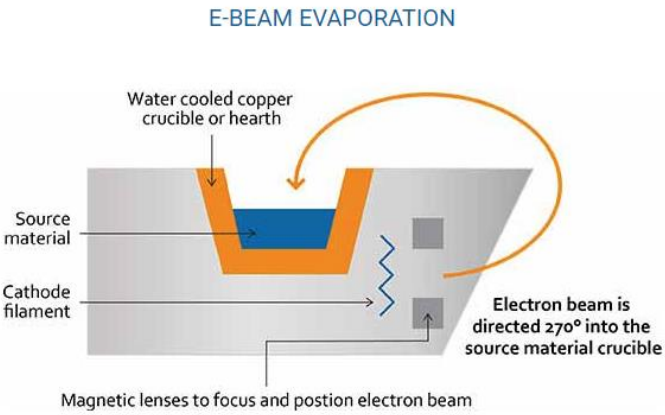
In e-beam evaporation, the evaporation material can be placed into a crucible and heated by a focused electron beam. The heat from the electron beam vaporizes the material, which then deposits on the substrate to form the required thin film.

Features:

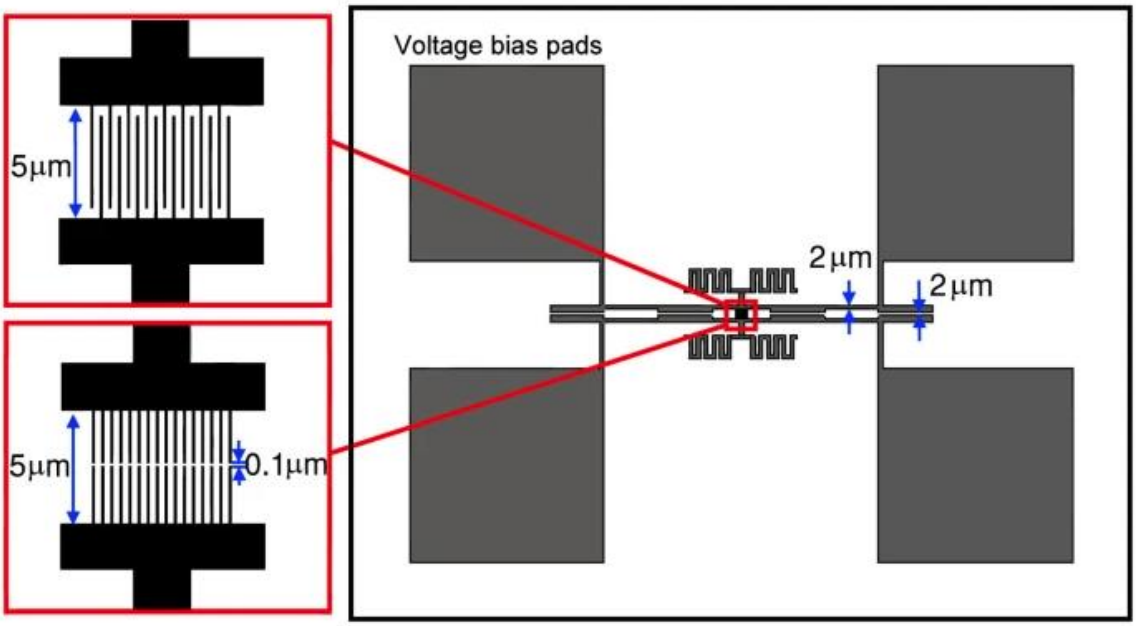
- Substrate size: Up to 4”
- Substrate rotation: 0 – 20 rpm
- Vacuum: Achieve to 10^{-7} Torr
- Thickness control: Inficon deposition controller
- Heater: Quartz lamp heater, max. 200°C
- Source: 4 pocket x 7cc capacity
- Controller: 4-channel sweep controller

Please refer to supplier information page: https://www.dentonvacuum.com/products-technologies/e-beam-evaporation/explorer/ for further details of the system.

For any inquiry, please contact Dr. Terence Wong (Tel: 3400 2075; Email: tai-lun.wong@polyu.edu.hk).



Denton Explorer E-beam Deposition System



The metal area Ti/Au of 10 nm/150 nm was deposited using Denton Explorer E-beam Evaporator

*[Scientific Reports **3,** 2824 (2013)]*