

ELECTRON-BEAM EVAPORATION

What We Offer

Design &
Simulation



Prototyping &
Fabrication



Testing &
Characterization



Physical vapour deposition (PVD) is a family of vacuum-based techniques that convert a solid source material into a vapour to form thin films on a substrate. In electron-beam evaporation, a focused electron beam heats a source material in a crucible until it vaporises, and the vapour then travels through the vacuum chamber and condenses onto the substrate. Because the beam heats the source material directly, this method works well even for materials that are difficult to deposit by other means, and the deposition rate can be adjusted across a wide range, from slow and precise to fast and high - throughput. This makes it well suited to metal, semiconductor, and dielectric coatings for microelectronics and optics.

Key applications

**Deposition of high-purity
metal and dielectric thin films
for microelectronic devices**

**Growth of ohmic and
Schottky contacts**

**Optical and protective
coatings, including metal-
oxide and fluoride layers**

CreaPhys / MBraun UNIVap 5 S

- Qualified and approved evaporation materials: Ti, Ni, Al, Au (Other materials may be qualified after approval)
- Substrate size: up to 100 × 100 mm or Ø 150 mm (1 × 150 mm wafer or 4 × 25 × 25 mm samples)
- Working pressure: 10⁻⁶ – 10⁻⁵ mbar
- E-beam source: EB M-7 II with WARP 6 II beam deflection, STINGRAY DC supply (2 – 10 kV, 0 – 600 mA, 6 kW max)
- Crucible pockets: 6 × 6 cm³ with motorized optical position feedback
- Substrate rotation: 0 – 30 rpm
- Thickness/rate control: 6 MHz water-cooled QCM + MB/SQC-310 controller (±0.03 Hz at 0.1 s ≈ 0.01 Å·s⁻¹ resolution)
- Uniformity: < ±5 % across 100 mm substrate (at 30 rpm)

Cleanroom class: ISO8

Contact person:

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Vacuum Systems Technologies / MBraun VST Model TFDS-870

- Available materials for evaporation: Au, AuGe12%, Ge, Ti, Ni, Sn, Pt and Al
- Maximum sample size: up to 75 mm (or up to 10 smaller samples within a 75 mm diameter)
- Substrate rotation: 0 - 28 rpm
- Thin-film thickness and deposition rate are controlled with Telemark (Model 880) controller
- Sensor crystal: 6 MHz (5–6 MHz range), 10 measurements per second, typical deposition rate 5 Å/s

Cleanroom class: ISO7

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Vakuumentchnik VERA 1100

- Single-layer and multilayer coatings
- Metals, metal-oxide and fluoride coatings such as SiO_2 , HfO_2 , MgF_2 , etc
- Physical thickness of coatings from a few nm to tens of μm
- Crystal quartz monitoring control

Cleanroom class: ISO6

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Vacuum evaporation equipment CUBIVAPT

- Configured for Ag deposition
- Maximum sample size: up to 300 mm
- Two 15 kW power electron guns
- Two 4 kW power resistive evaporators
- Substrate temperature: 20 – 400 °C
- Vacuum in a chamber: 10^{-3} Pa
- Film Thickness Control: Quartz crystal microbalance monitor
- Substrate rotation
- Supports metals with a melting temperature less than tungsten

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Vacuum evaporation equipment A7000E

- Available materials for deposition: Cu, Cr, Au, TiO_2
- Maximum sample size: up to 80 x 80 mm
- Thickness control: quartz thickness meter with microprocessor-based control
- Vacuum in a chamber: 10^{-4} – 10^{-5} Pa
- Two 6 kW power electron guns with four rotating crucibles
- Substrate temperature: 20 – 400 °C

Cleanroom class: ISO5

Contact person:

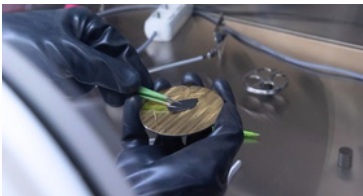
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Features:

- Single-layer and multilayer coatings across metals, oxides, and fluorides
- Substrate rotation up to 30 rpm for evaporated film uniformity
- IR substrate heating up to 500°C
- Real-time quartz-crystal monitoring for accurate rate and thickness control



If you have any questions, please contact us by email:
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