DENTON VACUUM
Enabling Innovation

# Infinity RM Ion Beam Deposition and Etch System

**The Infinity RM Ion Beam Deposition and Etch System provides a versatile solution to perform deposition and etch within a single system for the most demanding and challenging applications.**

## Benefits Include:

- Independent control of ion energy and flux—provides control of film microstructure, stoichiometry, and stress
- Stable deposition rates enable excellent control of film thickness and uniformity
- Second ion source for etch, ion-assisted deposition and pre-clean
- Easy-to-use software to provide a seamless and intuitive way to control the system

Infinity RM Etch and Deposition System

Infinity RM Chamber Internal View

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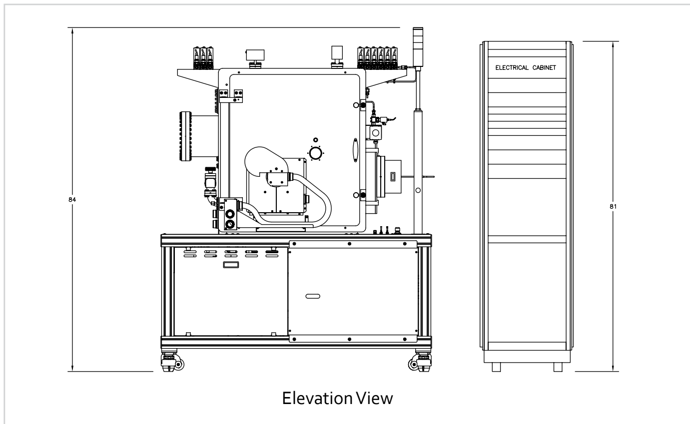


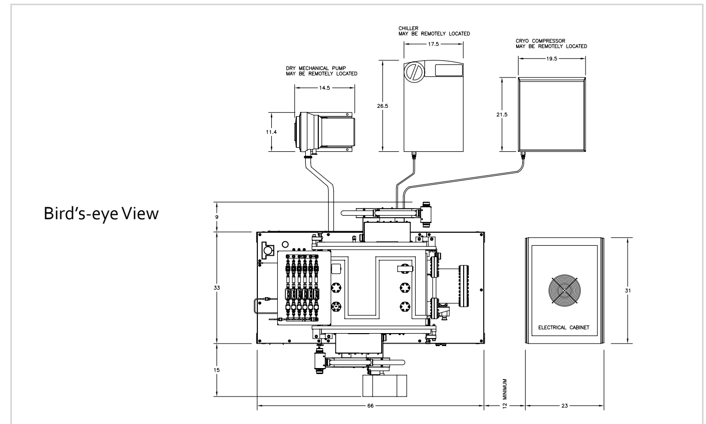


Infinity RM Ion Beam Etch and Deposition System Schematic

## Infinity RM Ion Beam Deposition and Etch System Specifications

| Process | System |
|---|---|
| • Inert or reactive gas in either source (RIBE)<br>• Wide variety of targets available including metals, dielectrics, ceramics, glasses, and refractory materials<br>• Reactive or non-reactive process (e.g. Si or $SiO_2$ or $Si_3N_4$ can be deposited from a Si target)<br>• Pre-clean for excellent interface/adhesion<br>• Assist for control of film stress, density, stoichiometry by adding oxygen/nitrogen through the assist, and index | • Single wafer, up to 8-inch Ø<br>• Separate etch/assist/pre-clean and deposition sources<br>• Water cooled substrate stage<br>• Substrate rotation and tilt (full tilt from normal incidence to perpendicular to target)<br>o Controls deposition and etch uniformity<br>o Controls etch rate and selectivity<br>• Substrate shutter<br>• Plasma bridge neutralizer |

## Infinity RM Uniformity

| Process | Substrate Size (7mm edge exclusion) | Uniformity (Range/2*Mean) |
|---|---|---|
| Deposition | 150mm | 2.5% |
| Etch | 150mm | 2.5% |
| Deposition | 200mm | 3.0% |
| Etch | 200mm | 3.0% |

**Ready to learn more about the Infinity RM Ion Beam Deposition and Etch System? Contact us today.**

## Ion Beam Etch/Assist/Pre-Clean Sources

- RF up to 36 cm or DC up to 21 cm
- Configured with larger sources for larger substrate sizes

## Ion Beam Endpoint Control

- Deposition processes:
  - Time-power
  - Quartz Crystal Monitoring (QCM): Inficon IC6 with a failsafe for time-power
- Etch processes:
  - Time-power
  - Secondary ion mass spectrometer (OMS) or Optical emission spectrometer (OES)