

Electron Beam lithography

Ultra high resolution Electron Beam
Lithography,
Imaging and Nanoengineering
Raith Nanofabrication



Description

The Raith e-LiNE is an electron beam lithography tool with a 100 mm by 100 mm travel range. It uses thermal field emission filament technology and a laser-interferometer controlled stage. The column voltage varies from 100 V to 30 kV and the laser stage moves with a precision of 2 nm.

There are six apertures on the system: 7.5, 10, 20, 30, 60, and 120 μm . The electron beam current is controlled by selecting the appropriate aperture. The system is equipped with a load lock, an automatic height laser sensor, an InLens detector and a SE2 detector, with a unique fixed beam moving stage (FBMS/MBMs) capability .

Specifications / Capabilities

Electron beam lithography: min. feature size < 20 nm

High resolution SEM imaging: resolution < 10 nm

Filament Schottky TFE

Beam size 2 nm @ 20 keV // 4 nm @ 1 keV

Beam current range 5pA-20nA

Beam energy 100eV -30KeV

Current stability max. 0.5 % / h

Min. feature size 20nm

Min. grating periodicity 100 nm period with 50 nm line

Stitching accuracy mean|+3 σ < 60 nm (100 μm write field, 10 keV)

Overlay accuracy |mean|+3 σ < 40 nm

Nano Eng. :

- Residual gas analyzer (RGA)
- Plasma cleaner ("De-Contaminator")
- EDX
- Nano manipulators
- GIS (Gas Injection system)

Link:

<https://www.raith.com/>



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