



MODEL 1064 ChipMill

A fully integrated solution for millimeter-scale delayering of both logic and memory semiconductor devices. The ChipMill integrates signals from multiple detectors via an artificial intelligence feedback control algorithm to adjust milling parameters in real time. The result is the precise removal of device layers and a highly planar surface.

Model 1064 ChipMill specifications

Ion source

Type: Hot filament electron impact

Beam energy: 100 eV to 10 keV; continuously adjustable in 5 eV increments

Beam diameter: 0.5 to 2 mm; adjustable, dependent upon energy level

Maximum current: 10 μ A

Current density: 5 mA/cm² (10 μ A in 0.5 mm beam)

Working distance: 25 to 100 mm

Raster range: 10 mm

Beam control: X-Y electrostatic deflection

Filament lifetime: 200 hours

Filament serviceability: Easy to change

Cooling: Air

Load lock

Pump down time: < 60 seconds

Venting time: < 20 seconds

Milling uniformity

For a 10 mm diameter milling area: surface planarity is better than 50 nm

User interface

User-friendly interface for the setup of milling parameters and display of images and analytical data

A touchscreen located near the load lock facilitates sample exchange

Stack light indicator allows the determination of milling operation status from a distance

Remote operation

MODEL 1064 ChipMill

Model 1064 ChipMill specifications

Automatic termination Milling operations can be terminated by time, chip structure, or chemical composition

Sample stage

Milling plane: Established by automatic height detection

Milling angle range: 0 to 10°

Rotation: 360° continuous

Rocking: 0 to 179°; adjustable in 1° increments

Sample size: 15 x 15 mm, 3 mm or less thickness

Milling area: 10 mm diameter

Sample image acquisition

Camera

Field of view: 1 cm

Electron beam column

- Accelerating voltage range: 0.5 to 10 kV
- Resolution: 100 nm
- Working distance: 16 mm

Detectors

Secondary electron detector (SED)

Backscatter electron (BSE) detector

Energy dispersive X-ray spectroscopy (EDS) detector

Secondary ion mass spectrometry (SIMS) detector

Process gas

Type: Argon

Purity: ≥ 99.995%

Flow rate: Adjustable ~0.1 sccm

Nominal pressure: 15 to 30 psi

Control gas

Type: Argon, dry N₂, or clean dry air

Nominal pressure: 55 psi, ±5 psi

Vacuum system

Two-stage pumping: Oil-free diaphragm pump and turbo-molecular pump

Vacuum detector: Pirani and cold cathode full-range gauge

MODEL 1064 ChipMill

Model 1064 ChipMill specifications

Enclosure	Width: 112 cm [44.1 in.]
	Height: 180.6 cm [71.1 in.]
	Depth: 52.4 cm [20.6 in.]
	Weight: 287 kg [632 lb.]
Power	220/240 V, 50/60 Hz, 1500 W
Warranty	One year

Distribution in the UK & Ireland



Lambda Photometrics Limited

Lambda House Batford Mill
Harpenden Herts AL5 5BZ
United Kingdom

E: info@lambdaphoto.co.uk

W: www.lambdaphoto.co.uk

T: +44 (0)1582 764334

F: +44 (0)1582 712084



©2022 E.A. Fischione Instruments, Inc. All rights reserved.
Model 1064 ChipMill technology U.S. patent pending.

NanoMill and PicoMill are registered trademarks of E.A. Fischione Instruments, Inc. ChipMilling is a service mark of E.A. Fischione Instruments, Inc.

Document Number SP1064 Revision 00 05/2022