



MODEL 1080

PicoMill® TEM specimen preparation system

Combines an ultra-low energy, inert gas ion source and a scanning electron column with multiple detectors to yield optimal TEM specimens.

Model 1080 PicoMill® TEM specimen preparation system specifications

Applications	Primary: Microelectronics and semiconductor transmission electron microscopy (TEM) specimen preparation Secondary: Any other specimens requiring optimal results Ideal for when FIB preparation is combined with aberration corrected TEM
Ion source	Filament-based ion source combined with electrostatic lens system Variable voltage (50 eV to 2 kV), continuously adjustable Beam current density up to 8 mA/cm² Beam size < 1 µm
Electron source	Accelerating voltage up to 15 keV Working distance of 16 mm Faraday cup for electron beam current monitoring with a range of 1 to 2,000 pA
Goniometer	TEM style X, Y, and Z axes movement and α tilt Specimen exchange of < 30 seconds Milling angle range of -15 to +90° Viewing range -15 to 180°
Holder	Side-entry, TEM-style holder Single-tilt with $\pm 20^\circ$ in-plane rotation
Ion beam targeting	Ion beam can be targeted to a specific point on the specimen surface or scanned within a selected area
User interface	Menu-driven with system status displayed

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Gas	Ion source gas: UHP 99.999% argon Gas control: Automated using mass flow control technology Pneumatic supply: Compressed dry air or dry nitrogen at 2 to 7 bar
Imaging	Secondary electron detector/Everhart-Thornley detector • Electron imaging with 2 mm field of view • Ion-induced secondary electron imaging with 1.9 mm field of view • Specimen image displayed on PicoMill system user interface Solid-state backscatter electron detector Solid-state scanning/transmission electron (STEM) detector
Vacuum system	Turbomolecular drag pump backed by an oil-free diaphragm pump Specimen chamber pressure: • Base vacuum of 3×10^{-6} mbar • Operating vacuum of 1×10^{-4} mbar Electron column: Base vacuum of 1×10^{-6} mbar Specimen goniometer: Atmosphere to 1 mbar (pre-pump) Vacuum gauges: • Cold cathode for specimen chamber and electron column • Pirani gauge for goniometer
Automatic termination	Termination by time, electron signal, or manual process
Dimensions	80.75 in. [205.51 cm] width x 57.85 in. [146.94 cm] height x 50.13 in. [127.33 cm] depth
Weight	500 lbs. [227 kg]
Power	208-240 VAC, 50/60 Hz, 1,100 W
Warranty	One year
Service contract	Download service contract information

*Standard side-entry TEM specimen holders cannot be used in the PicoMill system because they do not provide access to the specimen for ion milling. However, the PicoMill system holder can be used in both the PicoMill system and in corresponding electron microscopes.

Distribution in the UK & Ireland



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The PicoMill TEM specimen preparation system is the subject of United States Patent Nos. 7,132,673 and 7,504,623. PicoMill is a registered trademark of E.A. Fischione Instruments, Inc.

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