



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	<p>Primary: Microelectronics and semiconductor transmission electron microscopy (TEM) specimen preparation</p> <p>Secondary: Any other specimens requiring optimal results</p> <p>Ideal for when FIB preparation is combined with aberration corrected TEM</p>
Ion source	<p>Filament-based ion source combined with electrostatic lens system</p> <p>Variable voltage (50 eV to 2 kV), continuously adjustable</p> <p>Beam current density up to 8 mA/cm²</p> <p>Beam size < 1 μm</p>
Electron source	<p>Accelerating voltage up to 10 keV</p> <p>Working distance of 16 mm</p> <p>Faraday cup for electron beam current monitoring with a range of 1 to 2,000 pA</p>
Goniometer	<p>TEM style</p> <p>X, Y, and Z axes movement and α tilt</p> <p>Specimen exchange of < 30 seconds</p> <p>Milling angle range of -15 to +90°</p> <p>Viewing range -15 to 180°</p>
Holder*	<p>Side-entry, TEM-style holder</p> <p>Compatible with all major TEMs</p>
Ion beam targeting	<p>Ion beam can be targeted to a specific point on the specimen surface or scanned within a selected area</p>
User interface	<p>Menu-driven with system status displayed</p>

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Gas	Ion source gas: UHP 99.999% argon Gas control: Automated using mass flow control technology Control gas: Nitrogen, argon, or clean dry air (CDA) at 2 to 7 bar
Imaging	Secondary electron detector/Everhart-Thornley detector <ul style="list-style-type: none">• 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 mechanical pump Specimen chamber pressure: <ul style="list-style-type: none">• 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: <ul style="list-style-type: none">• Cold cathode for specimen chamber and electron column• Pirani gauge for goniometer
Automatic termination	Termination by time, electron signal, or manual process
Dimensions	205.51 cm [80.75 in.] width x 146.94 cm [57.85 in.] height x 127.33 cm [50.13 in.] depth
Weight	227 kg [500 lbs.]
Power	208-240 V AC, 50/60 Hz, 1,100 W
Warranty	One year

*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.



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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, and European Patent No. 1,803,140. PicoMill is a registered trademark of E.A. Fischione Instruments, Inc.

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