



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>

MODEL 1080 PicoMill® TEM specimen preparation system

Gas	<p>Ion source gas: UHP 99.999% argon</p> <p>Gas control: Automated using mass flow control technology</p> <p>Control gas: Nitrogen, argon, or clean dry air (CDA) at 2 to 7 bar</p>
Imaging	<p>Secondary electron detector/Everhart-Thornley detector</p> <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 <p>Solid-state backscatter electron detector</p> <p>Solid-state scanning/transmission electron (STEM) detector</p>
Vacuum system	<p>Turbomolecular drag pump backed by an oil-free mechanical pump</p> <p>Specimen chamber pressure:</p> <ul style="list-style-type: none">• Base vacuum of 3×10^{-6} mbar• Operating vacuum of 1×10^{-4} mbar <p>Electron column: Base vacuum of 1×10^{-6} mbar</p> <p>Specimen goniometer: Atmosphere to 1 mbar (pre-pump)</p> <p>Vacuum gauges:</p> <ul style="list-style-type: none">• Cold cathode for specimen chamber and electron column• Pirani gauge for goniometer
Automatic termination	Termination by time 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.



E.A. Fischione Instruments, Inc.
9003 Corporate Circle
Export, PA 15632 USA
Tel: +1 724.325.5444
Fax: +1 724.325.5443
info@fischione.com
www.fischione.com

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.

©2023 E.A. Fischione Instruments, Inc. All rights reserved.
Document Number SP1080 Revision 08 06/2023