



# MODEL 1061

## SEM Mill

A state-of-the-art ion milling and polishing system. It is compact, precise, and consistently produces high-quality scanning electron microscopy (SEM) samples in the shortest amount of time for a wide variety of applications.

### Model 1061 SEM Mill specifications

#### Ion sources

Two TrueFocus ion sources  
Variable energy (100 eV to 10.0 keV) operation  
Beam current density up to 10 mA/cm<sup>2</sup>  
Milling angle range of 0 to +10°  
Choice of single or dual ion source operation  
Manual or motorized (optional) ion source angle adjustment  
Independent ion source energy control  
Adjustable spot size

#### Sample stage

Sample size:

- Cross section\*  
Maximum: 0.39 x 0.39 x 0.157 in. (10 x 10 x 4.0 mm)  
Minimum: 0.12 x 0.12 x 0.028 in. (3 x 3 x 0.7 mm)
- Planar  
1.25 in. diameter x 1 in. height (32 x 25 mm)

Automatic sample thickness sensing to establish the milling plane and maximize throughput  
360° sample rotation with variable rotation speed  
Sample rocking  
Magnetic encoder provides absolute positioning accuracy

\* Standard size; other sizes available upon request.

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<b>Cross-section station (optional)</b>	<p>Produces pristine cross-section samples</p> <p>Allows precise positioning of the area of interest – x, y, and <math>\theta</math></p> <p>Effective for use with a wide variety of materials, including semiconductor devices, multilayers, ceramics, and hard/brittle materials</p> <p>Prepared region of interest is flat and free from damage for subsequent SEM imaging and analysis</p> <p>Accommodates a wide range of sample and mask sizes:</p> <ul style="list-style-type: none"> <li>• Sample and mask align both laterally and angularly</li> <li>• Multiple uses from a single mask</li> </ul>
<b>Sample cooling (optional)</b>	<p>Liquid nitrogen conductive cooling with integral dewar and automatic temperature interlocks</p> <p>Achieves temperatures better than -170 °C</p> <p>Dewar access positioned close to instrument operator</p> <p>Ability to program and maintain a specific temperature between ambient and cryogenic</p> <p>Choice of:</p> <ul style="list-style-type: none"> <li>• Standard dewar capacity (3 to 5 hours of cryo conditions)</li> <li>• Extended dewar capacity (18+ hours of cryo conditions)</li> </ul>
<b>Automatic termination</b>	<p>Automatic termination by time or temperature</p>
<b>Vacuum system</b>	<p>Turbomolecular drag pump and an oil-free, multi-stage diaphragm pump</p> <p>Vacuum sensing with a cold cathode, full-range gauge</p>
<b>Vacuum or inert gas transfer capsule (optional)</b>	<p>Allows transfer or storage of a sample at vacuum or in an inert gas environment</p>
<b>Process gas</b>	<p>UHP argon (99.999%); nominal 15 psi delivery pressure required</p> <p>Automatic gas control using two mass flow controllers</p>
<b>User interface</b>	<p>Instrument operation controlled via 10-inch, ergonomically adjustable touch screen</p> <p>Stack light indicator for determining milling operations status from a distance (optional)</p>

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<b>Microscope (optional)</b>	Load lock window accommodates either a: <ul style="list-style-type: none"><li>• 7 to 45 X stereo microscope attachment for direct specimen observation</li><li>• 1,960 X high-magnification microscope and CCD camera system for site-specific image acquisition and display</li></ul>
<b>In situ viewing and imaging</b>	Sample can be monitored in situ in the milling position when using either the stereo or the high-magnification microscope Viewing window protected by a programmable shutter that prevents buildup of sputtered material and preserves the ability to observe the sample in situ
<b>Sample illumination</b>	Both the high-magnification and stereo microscopes have light sources that provide top-down, user adjustable, reflected sample illumination
<b>Enclosure</b>	Width: 26 in. (66 cm) Height: <ul style="list-style-type: none"><li>• 13 in. (33 cm) height (to top of cabinet)</li><li>• 24.5 in. (62 cm) height (to top of stereo microscope)</li></ul> Depth: 20.5 in. (52 cm) Enclosure design offers easy access to internal components when performing maintenance tasks
<b>Weight</b>	161 lb. (73 kg)
<b>Power</b>	100/120/220/240 VAC, 50/60 Hz, 720 W
<b>Warranty</b>	One year



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