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/cm²
- 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
- Faraday cups for the direct measurement of beam current from each ion source; allows optimization and adjustment of the ion source parameters for specific applications

**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.
### Model 1061 SEM Mill specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Cross-section station (optional)</strong></td>
<td>Produces pristine cross-section samples&lt;br&gt;Allows precise positioning of the area of interest – x, y, and θ&lt;br&gt;Effective for use with a wide variety of materials, including semiconductor devices, multilayers, ceramics, and hard/ brittle materials&lt;br&gt;Prepared region of interest is flat and free from damage for subsequent SEM imaging and analysis&lt;br&gt;Accommodates a wide range of sample and mask sizes:&lt;br&gt;• Sample and mask align both laterally and angularly&lt;br&gt;• Multiple uses from a single mask</td>
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<td><strong>Sample cooling (optional)</strong></td>
<td>Liquid nitrogen conductive cooling with integral dewar and automatic temperature interlocks&lt;br&gt;Dewar access positioned close to instrument operator&lt;br&gt;Ability to program and maintain a specific temperature between ambient and cryogenic&lt;br&gt;Choice of:&lt;br&gt;• Standard dewar capacity (3 to 5 hours of cryo conditions)&lt;br&gt;• Extended dewar capacity (18+ hours of cryo conditions)</td>
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<td><strong>Automatic termination</strong></td>
<td>Automatic termination by time or temperature</td>
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<td><strong>Vacuum system</strong></td>
<td>Turbomolecular drag pump and an oil-free, multi-stage diaphragm pump&lt;br&gt;Vacuum sensing with a cold cathode, full-range gauge</td>
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<td><strong>Vacuum or inert gas transfer capsule (optional)</strong></td>
<td>Allows transfer or storage of a sample at vacuum or in an inert gas environment</td>
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<td><strong>Process gas</strong></td>
<td>UHP argon (99.999%); nominal 15 psi delivery pressure required&lt;br&gt;Automatic gas control using two mass flow controllers</td>
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<td><strong>User interface</strong></td>
<td>Instrument operation controlled via 10-inch, ergonomically adjustable touch screen&lt;br&gt;Stack light indicator for determining milling operations status from a distance (optional)</td>
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| **Microscope (optional)** | Load lock window accommodates the following microscopes:  
- 7 to 45X stereo microscope attachment for direct specimen observation  
- 525X high-magnification microscope and CMOS (complementary metal oxide semiconductor) camera system for site-specific image acquisition and display  
- 1,960X high-magnification microscope and CMOS camera system for site-specific image acquisition and display |
| **In situ viewing and imaging** | 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 |
| **Sample illumination** | Both the high-magnification and stereo microscopes have light sources that provide top-down, user adjustable, reflected sample illumination |
| **Enclosure** | Width (includes room on either side for service access): 50 in. (127 cm)  
Height:  
- Minimum height (without microscope or stack light options): 32 in. (61 cm)  
- Maximum height (with stack light option): 38 in. (77 cm)  
Depth (includes room for service access and exhaust fan air flow): 40 in. (102 cm)  
Enclosure design offers easy access to internal components when performing maintenance tasks |
| **Weight** | 161 lb. (73 kg) |
| **Power** | 100/120/220/240 VAC, 50/60 Hz, 720 W |
| **Warranty** | One year |