



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

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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Cross-section station (optional)	<p>Produces pristine cross-section samples</p> <p>Allows precise positioning of the area of interest – x, y, and θ</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"> • Sample and mask align both laterally and angularly • Multiple uses from a single mask
Sample cooling (optional)	<p>Liquid nitrogen conductive cooling with integral dewar and automatic temperature interlocks</p> <p>Achieves temperatures better than $-170\text{ }^{\circ}\text{C}$</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"> • Standard dewar capacity (3 to 5 hours of cryo conditions) • Extended dewar capacity (18+ hours of cryo conditions)
Automatic termination	<p>Automatic termination by time or temperature</p>
Vacuum system	<p>Turbomolecular drag pump and an oil-free, multi-stage diaphragm pump</p> <p>Vacuum sensing with a cold cathode, full-range gauge</p>
Vacuum or inert gas transfer capsule (optional)	<p>Allows transfer or storage of a sample at vacuum or in an inert gas environment</p>
Process gas	<p>UHP argon (99.999%); nominal 15 psi delivery pressure required</p> <p>Automatic gas control using two mass flow controllers</p>
User interface	<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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Microscope (optional)	Load lock window accommodates either a: <ul style="list-style-type: none">• 7 to 45 X stereo microscope attachment for direct specimen observation• 1,960 X high-magnification microscope and CCD 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: 26 in. (66 cm) Height: <ul style="list-style-type: none">• 13 in. (33 cm) height (to top of cabinet)• 24.5 in. (62 cm) height (to top of stereo microscope) Depth: 20.5 in. (52 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



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