



MODEL 1051

TEM Mill

A state-of-the-art ion milling and polishing system offering reliable, high performance specimen preparation. It consistently produces high-quality transmission electron microscopy (TEM) specimens with large electron transparent areas from a wide variety of materials.

Model 1051 TEM Mill specifications

Ion sources

- Two TrueFocus ion sources
- Variable energy (100 eV to 10 kV) operation
- Beam current density up to 10 mA/cm²
- Milling angle range of -15 to +10°
- Choice of single or dual ion source operation
- Independent ion source energy control
- Manual or motorized (optional) ion source angle adjustment
- 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

Specimen holder

- Designed for improved specimen handling and thermal properties; includes loading station
- Holder clamping mechanism allows for simple specimen loading and double-sided milling to 0° without shadowing
- Specimen holder and loading station with x-y adjustment capabilities (optional)

Specimen stage

- Specimen size: 3 mm diameter x 250 µm thick
- 360° specimen rotation with variable rotation speed and beam sequencing
- Specimen rocking
- Magnetic encoder provides absolute positioning accuracy

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Specimen cooling (optional)	<p>Liquid nitrogen conductive cooling with integral dewar and automatic temperature interlocks</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 (12+ hours of cryo conditions)
Automatic termination	<p>Automatic termination by time, temperature, or laser photodetector (optional)</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 specimen 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, adjustable touch screen</p> <p>Stack light indicator for determining milling operations status from a distance (optional)</p>
Microscope (optional)	<p>Load lock window accommodates either a:</p> <ul style="list-style-type: none"> • 7 to 45 X stereo microscope attachment for direct specimen observation • 1,960 X high-magnification microscope and CMOS (complementary metal oxide semiconductor) camera system for site-specific image acquisition and display
In situ viewing/imaging	<p>Specimen can be monitored in situ in the milling position when using either the stereo or the high-magnification microscope</p> <p>Viewing window protected by a programmable shutter that prevents buildup of sputtered material and preserves the ability to observe the specimen in situ</p>

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Specimen illumination

A light positioned beneath the specimen provides user adjustable, transmitted specimen 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



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