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/cm^2 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)	Liquid nitrogen conductive cooling with integral dewar and automatic temperature interlocks Achieves temperatures better than -170 °C Dewar access positioned close to instrument operator Ability to program and maintain a specific temperature between ambient and cryogenic Choice of: • Standard dewar capacity (3 to 5 hours of cryo conditions) • Extended dewar capacity (18+ hours of cryo conditions)
Automatic termination	Automatic termination by time, temperature, or laser photodetector (optional)
Vacuum system	Turbomolecular drag pump and an oil-free, multi-stage diaphragm pump Vacuum sensing with a cold cathode, full-range gauge
Vacuum or inert gas transfer capsule (optional)	Allows transfer or storage of specimen at vacuum or in an inert gas environment
Process gas	UHP argon (99.999%); nominal 15 psi delivery pressure required Automatic gas control using two mass flow controllers
User interface	Instrument operation controlled via 10-inch, adjustable touch screen Stack light indicator for determining milling operations status from a distance (optional)
Microscope (optional)	Load lock window accommodates either a: • 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

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In situ viewing/imaging	Specimen 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 specimen in situ
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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Document Number SP1051 Revision 02 10/2017