



MODEL 1040

NanoMill[®] TEM specimen preparation system

The NanoMill system uses an ultra-low energy, concentrated ion beam to produce the highest quality specimens for transmission electron microscopy.

Model 1040 NanoMill TEM specimen preparation system specifications

Ion source

Filament-based ion source combined with electrostatic lens system
Variable voltage (50 eV to 2 kV), continuously adjustable
Beam current density up to 1 mA/cm²
Beam diameter as small as 1 μm at 2,000 eV
Faraday cup for ion beam current monitoring with a range of 1 to 2,000 pA
Field-replaceable apertures

Specimen position control

Load lock allows specimen exchange in less than 10 seconds
Transfer rod for specimen exchange
Milling angle range of -10 to +30°
Stage can be rotated both clockwise and counter-clockwise; the maximum angle is 180°
Stage rotation enables horizontal alignment of the specimen, which enables improved placement of the milling box

Vacuum system

Turbomolecular drag pump backed by an oil-free diaphragm pump
Chamber vacuum measurement with a combination cold cathode and Pirani gauge with a range of atmosphere to 1 x 10⁻⁸ mbar
System base vacuum of 3 x 10⁻⁷ mbar
Operating vacuum of 1 x 10⁻⁴ mbar

Gas

Automated using mass flow control technology
Flow rate up to 2 sccm
Integral particulate filter
Inert gas (argon) with recommended purity of 99.999%

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Specimen targeting	Ion beam capable of being targeted at one spot on the specimen surface or scanned within a selected area
User interface	Easy to use, menu-driven interface
Chamber illumination	User-controlled chamber illumination to facilitate specimen exchange
Specimen cooling	Liquid nitrogen conductive cooling with automatic temperature interlocks Stage temperature to $-170\text{ }^{\circ}\text{C}$ System cool-down time less than 20 minutes Specimen cool-down time less than 5 minutes Dewar hold time up to 6 hours
Automatic termination	Process termination by time or temperature
Imaging	SED-based imaging technology 1.8 mm field of view Everhart-Thornley detector Specimen image displayed on graphical user interface
Dimensions	991 mm [39 in.] width x 1,474 mm [58 in.] height x 788 mm [31 in.] depth
Weight	230.5 kg [507 lb.]
Power	110/220 VAC, 50/60 Hz, 1,000 W
Warranty	One year
Service contract	Contact your Fischione Instruments sales representative



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The NanoMill system is subject to U.S. patent numbers 7,132,673 and 7,504,623; and Europe patent number 1,803,140.
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