TECHNOORG
L I N D A

SEMPREP2

High-quality site-specific sample preparation in SEM application

- Cross-sectional sample preparation by slope cutting in 90°, 45° and 30° by different sample holders
- Final polishing and cleaning of traditional SEM and EBSD samples
- Load-lock system for faster and easier sample exchange
- High-energy ion gun for rapid milling
- Optional ultra high-energy ion gun specially recommended for ion milling extra hard materials or for extreme fast milling
- Low-energy ion gun for gentle surface polishing and cleaning
- Automated parameter settings and operation
- Sample rotation and oscillation
- Real-time monitoring of the milling process by high-resolution CMOS camera and TFT monitor

DESCRIPTION

The SC-2000 model is equipped both with high- and low-energy ion sources. Rapid slope cutting with the high-energy ion gun followed by gentle surface cleaning with the low-energy ion gun provides cross-sectional SEM samples suitable for semiconductor failure analysis and other analytical purposes. The system also provides an ion milling based solution for improving and cleaning of mechanically polished SEM samples and preparation of damage-free surfaces for EBSD technique. The new 16 keV ultra-high energy ion source is more powerful and has higher sputtering rate as before.

SPECIFICATIONS

• Ion sources:	two ion guns:	high-energy ion gun operating up to 10 keV or optionally ultra high-energy ion gun operating up to 16 keV low-energy ion gun in the range of 100 eV to 2 keV continuously and independently adjustable milling energy
• Sample stage:	sample size:	slope cutting sample holder (available with 30°, 45°, 90° tilted platforms) for 30°, 45° holders: max. 20 mm (l) x 16 mm (w) x 7 mm (th) for 90° holder: max. 20 mm (l) x 16 mm (w) x 5.5 mm (th) sample holder for surface cleaning (EBSD) using 3 different head type: flat head type: max. Ø36 mm x 0-5.5 mm standard type: max. Ø26 mm x 3-14 mm hollow type: max. Ø24 mm x 13-19 mm
	sample tilting:	0° to 30° in 0.1° increments
	sample rotation:	in-plane rotation, 360° (available only for surface cleaning sample holder)
	sample oscillation:	in-plane oscillation from +10° to +40° in 10° steps
• Sample cooling		LN_2 cooling for preparing heat sensitive samples - optional Peltier cooling to protect the samples from thermal overrun - optional
• Vacuum system:		oil-free diaphragm and turbomolecular pumps with combined (Pirani/Penning) vacuum gauge
• Gas supply system:		99.999% purity argon high-precision working gas flow control with motorized needle valve
• Imaging system:		high-resolution CMOS camera with manual zoom video lens of 50-400x magnification
• Computer control:		easy-to-use graphical interface, automated ion source setup, milling parameter setting and operation control

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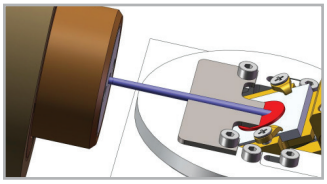
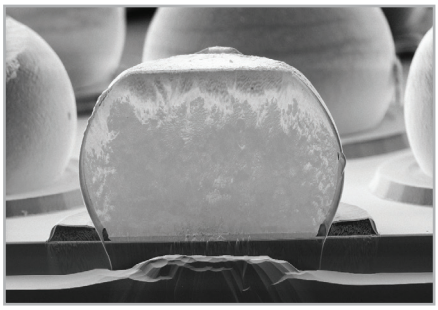
APPLICATIONS

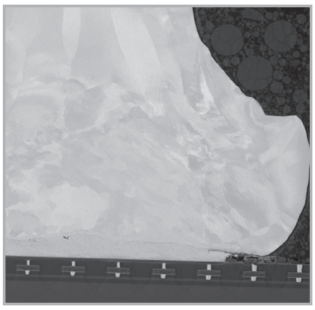
ION BEAM SLOPE CUTTING

To produce excellent quality planar cross-sections of different solid state materials for SEM/EBSD imaging and microanalysis.





Sn-Ag solder ball grid array (BGA)

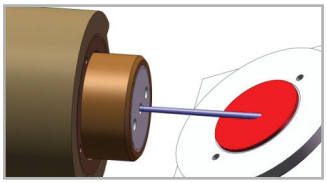


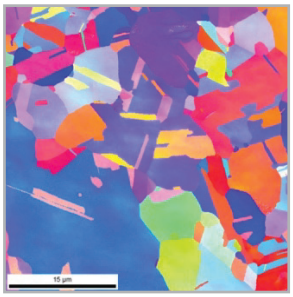
Metal wire bonding

EBSD image (OIM) made on an as-cut surface of copper

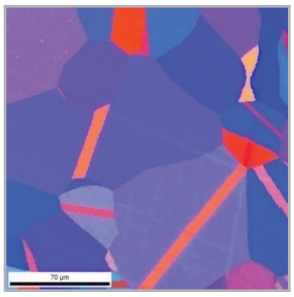
FINAL POLISHING

To produce samples for Electron Back Scatter Diffraction (EBSD) study and Orientation Imaging Microscopy (OIM)

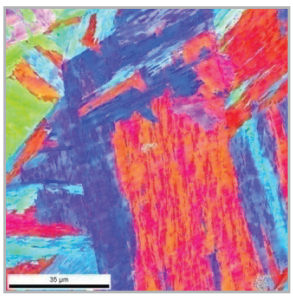




Copper

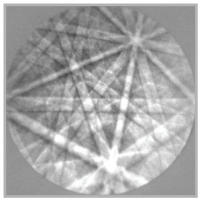


Nickel



Martensitic steel

Limestone



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