

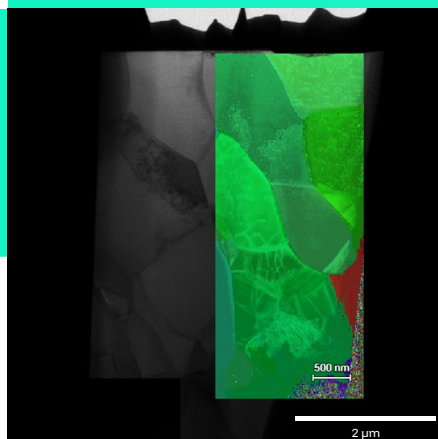
Tescan AMBER X 2

for Materials Science

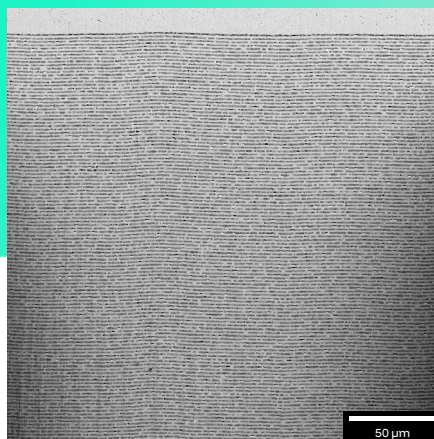
A unique analytical combination of field-free UHR SEM with Plasma FIB with unmatched precision and speed for the most comprehensive multimodal materials characterization and automated TEM sample preparation



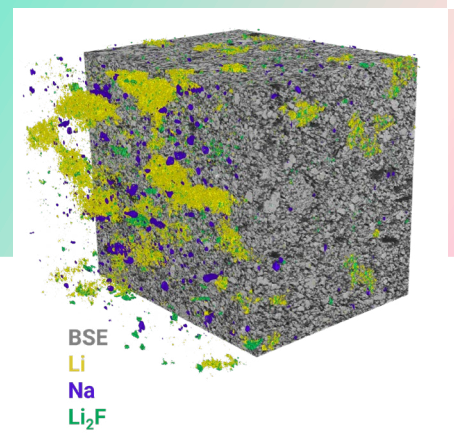
The Tescan AMBER X 2, powered by Mistral™ Plasma FIB and the third-generation BrightBeam™ field-free UHR SEM, excels in precise TEM sample preparation with 500 eV final polishing and fully automated TEM sample preparation through TEM AutoPrep™ software. The AI-driven TEM AutoPrep™ software simplifies the TEM sample preparation process, making it accessible for both new users and those accustomed to working with Ga FIB-SEMs. At the same time, the AMBER X 2 features excellent beam parameters across all beam currents for fast, high-quality 3D analysis of your materials. The third-generation BrightBeam™ field-free UHR SEM column acquires multiple electron signals, including energy filtering, and is ideal for analyzing ferromagnetic materials, magnetic powders, and non-conductive samples. This versatile platform ensures precise, efficient, and automated TEM lamella preparation, while maintaining high throughput for 3D characterization, enhancing both productivity and versatility in your lab.



↑ TEM lamella from aluminum, automatically prepared using Plasma FIB to eliminate Ga contamination. Overlay of bright-field STEM and grain orientation maps collected by Tescan TENSOR 4D STEM.



↑ Artifact-free image of a micrometer-scale cross section prepared from a multilayered electronic device, MLCC. Metallic and ceramic layers in an area of 300 x 300 µm are clearly visible.



↑ 3D FIB-SEM tomography visualization of an LFP cathode incorporates 3D ToF-SIMS data for highly sensitive detection of light elements, including lithium (volume: 60 µm x 60 µm x 60 µm).

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Key Benefits

Analyze and interpret your sample structure, elemental distribution and chemistry, including isotopic characterization, in 3D by employing Tescan's unique Multimodal 3D FIB-SEM Tomography, which enables user-selectable, complementary acquisition of selected SEM, EDS, EBSD and ToF-SIMS data during FIB serial sectioning.

Prepare TEM samples with plasma FIB just as you would with Ga FIB, without any Ga metal contamination, by taking advantage of the unmatched FIB resolution and beam density of the new Mistral™ Plasma FIB column and fully automated TEM sample prep—TEM AutoPrep™.

Perform ultra-high resolution imaging and surface sensitive nanoanalysis on the widest range of materials, with the BrightBeam™ field-free UHR-SEM column, which features low landing energies for sensitive materials.

Characterize any sample in 3D quickly and obtain the cleanest surface at your areas of interest by utilizing high beam currents of Xe ion beam and the precision delivered by the market leading beam parameters of the Mistral™ Plasma FIB column.

Obtain the best data even faster from challenging samples such as SiC, ceramics, graphite anodes and more by utilizing Tescan's proprietary Rocking Stage and the highest beam current of the Mistral™ Plasma FIB column to produce pristine surfaces.

Speed 3D characterization or cross-sectioning of large areas and assure superior surface quality with Tescan Rocking Stage to suppress curtaining artifacts and Tescan TRUE-X-Sectioning for large volume material studies up to 1 mm.

