

Tescan AMBER X 2

CRYO PLASMA FIB-SEM for Life Sciences

Tescan AMBER X 2 is a **high-performance** Xe plasma Focused Ion Beam-Scanning electronmicroscope (FIB-SEM) for extra-large volume analysis and high throughput cryo applications. Equipped with the Mistral™ column, Tescan AMBER X 2 supports cryo-FIB applications previously performed with Ga FIB systems, in a fraction of the time with the ultra-fast material removal rates inherent to plasma FIB. Features hidden deep inside the sample can be exposed within minutes, compared to using traditional Ga FIB milling which would take several hours.

Tescan AMBER X 2 is well suited to hard biological materials, such as bones or shells, which can be sectioned easily with the precision expected from a FIB system.

Tescan's proprietary artifact prevention methods allow 3D FIB-SEM tomography of soft tissues, porous materials or regions with varying hardness without the need to remove the artificial stripes in image post-processing. Tescan AMBER X 2 exceptional FIB field of view covers up to 1 mm for cross sectioning and large volume analyses.

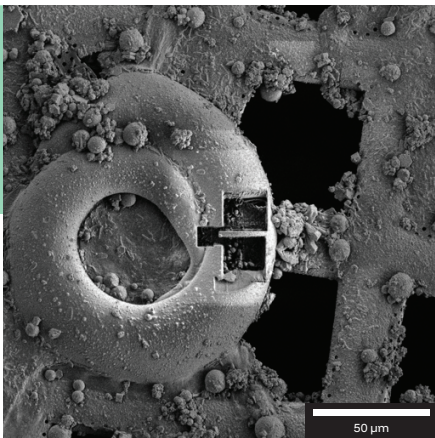
Tescan AMBER X 2 is ideal for core facilities and imaging and microscopy centers serving both life sciences and materials science, with the versatility to handle a variety of materials and specimens, at ambient or cryogenic temperatures.



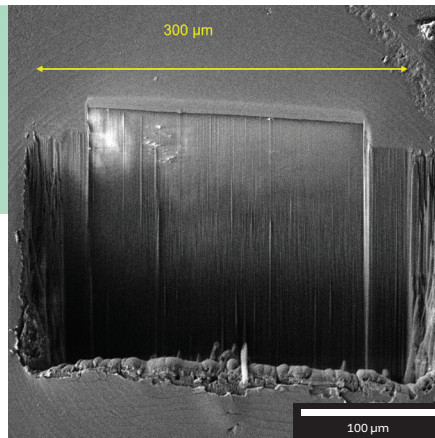
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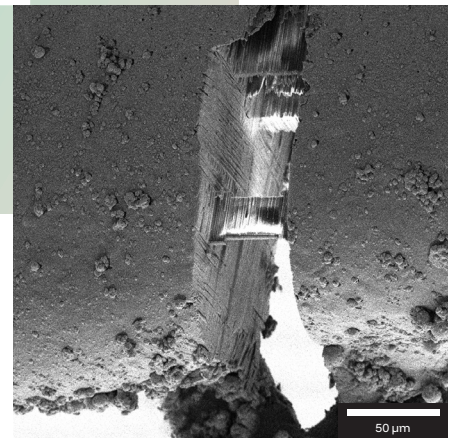
High throughput FIB-SEM solution for demanding cryo
and room temperature structural analysis applications



↑ CryoTEM lamella prepared for a site-specific lift-out in the body of a *C. elegans* worm.



↑ Large top-down cross-section through ice layer from the top of an HPF sample. Window opening enables site-specific cryoTEM lamella lift-out.



↑ Extra-large on-grid cryoTEM lamella prepared deep in tissue biopsy by the "waffle method"

Key Benefits:

- **Remove the greatest bottleneck from your cryo-ET sample preparation workflow** by performing material removal and sample thinning at faster milling rates with the Mistral™ Xe plasma FIB column
- **Perform cryo on-grid lamella preparation in minutes** with high-performance plasma FIB and optimised workflows essential for high throughput cryo-EM sample preparation
- **Perform cryo lift-out easily** using the new Tescan cryo-nanomanipulator with its smooth, precision movement and intuitive probe tip navigation
- **Increase your cryo-microscopy productivity** with Leica Microsystems GmbH and Quorum Technologies Ltd cryo systems that are fully integrated into the Tescan hardware and software for convenient and safe microscope operation under cryogenic conditions.
- **Process soft and hard specimens, and specimens with mixed compositions, like soft tissues in hard shells, without introducing curtaining artifacts** using Tescan's True X-Sectioning kit and Tescan Rocking Stage
- **Navigate to regions of interest quickly and safely** with our unique 3D chamber model for collision protection
- **Jumpstart your FIB-SEM work** by selecting from a variety of ready-to-use, guided and customizable workflow templates included in Tescan Essence™ software
- **Streamline the operating experience for everyone in the lab** with modular Tescan Essence™ software, which allows new users to achieve productivity quickly using guided workflows, while also letting experts customize microscope controls.

Key Applications:

- **High throughput cryo FIB-SEM workflows.** Optimized cryo-TEM lamella workflow for artifact-free on-grid preparation of planar lamella from plunge frozen specimens, and cryo lift-out of lamella from bulk, high pressure frozen specimens.
- **3D FIB-SEM tomography of large volumes and/or hard materials such as shells, bones, and dental tissue**