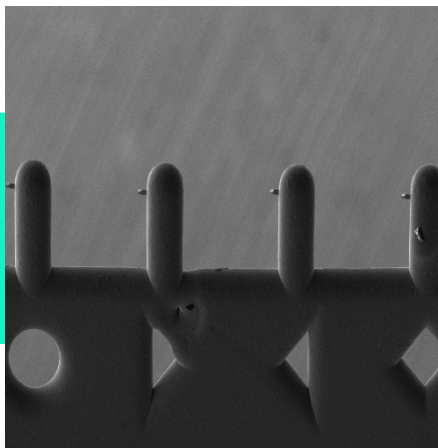


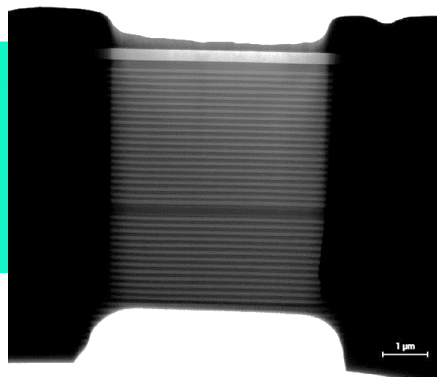
Tescan TEM AutoPrep™ Pro

Automated TEM sample preparation – consistent, scalable and effortless

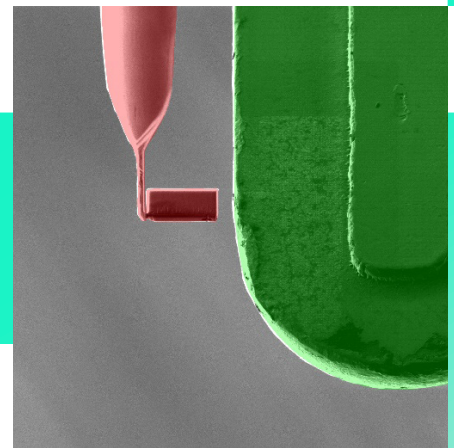
Tescan TEM AutoPrep™ Pro is an AI-driven software solution designed to automate TEM sample preparation with high consistency and ease. Integrated with the Essence™ platform, it simplifies complex FIB-SEM workflows enabling users of all experience levels to produce high-quality lamellae with minimal manual intervention. From smart step recognition to automated lift-out and geometry adjustments (planar or inverted), Tescan TEM AutoPrep™ Pro ensures reliable results across diverse materials. The system actively monitors the preparation steps, correcting issues in real time or seamlessly switching to alternate samples—ensuring uninterrupted, hands-free operation. With support for overnight, unattended workflows, labs can boost daily throughput by up to 60%. Built-in material libraries and smart recipe tools reduce workflow optimization time by 66%, while delivering up to 95% repeatability in standardized sample prep. Whether you're scaling productivity, onboarding new users, or reducing expert workload, TEM AutoPrep™ Pro delivers robust, repeatable performance—making high-quality TEM prep accessible to every user in every lab.



Four out of 8 TEM samples were successfully prepared overnight using an automated workflow, which included both the lift-out process and final low keV polishing, applied to a nickel alloy



Brightfield STEM image of a GaAs TEM sample prepared automatically using a Tescan AMBER X plasma FIB system, featuring fully automated polishing on the TEM grid, including final steps at low accelerating voltages



AI-based object recognition actively identified the TEM sample attached to the nanomanipulator and marked the nearby TEM grid position for attachment during the automated lift-out process

Key Benefits

Accelerate onboarding for new FIB-SEM users

by incorporating fully automated workflows for standard TEM preparation steps, reducing the need for extensive training. TEM AutoPrep™ Pro cuts workflow steps by approximately 75%, enabling faster ramp-up for new users.

Extend microscope utilization outside working hours, with unattended, overnight batch preparation of TEM samples. TEM AutoPrep™ Pro supports multi-site, multi-material workflows, increasing daily sample throughput by up to 60%, depending on lab hours.

Operate FIB-SEM with confidence, supported

with robust and intelligent automation by relying on AI-monitored workflows that detect and correct errors, notify operator when necessary, and automatically switch to alternate samples—ensuring safe, consistent operation.

Expand TEM sample preparation across teams

while enabling more users to prepare samples independently through intuitive, automated workflows designed for materials science applications.

Tescan TEM AutoPrep™ Pro

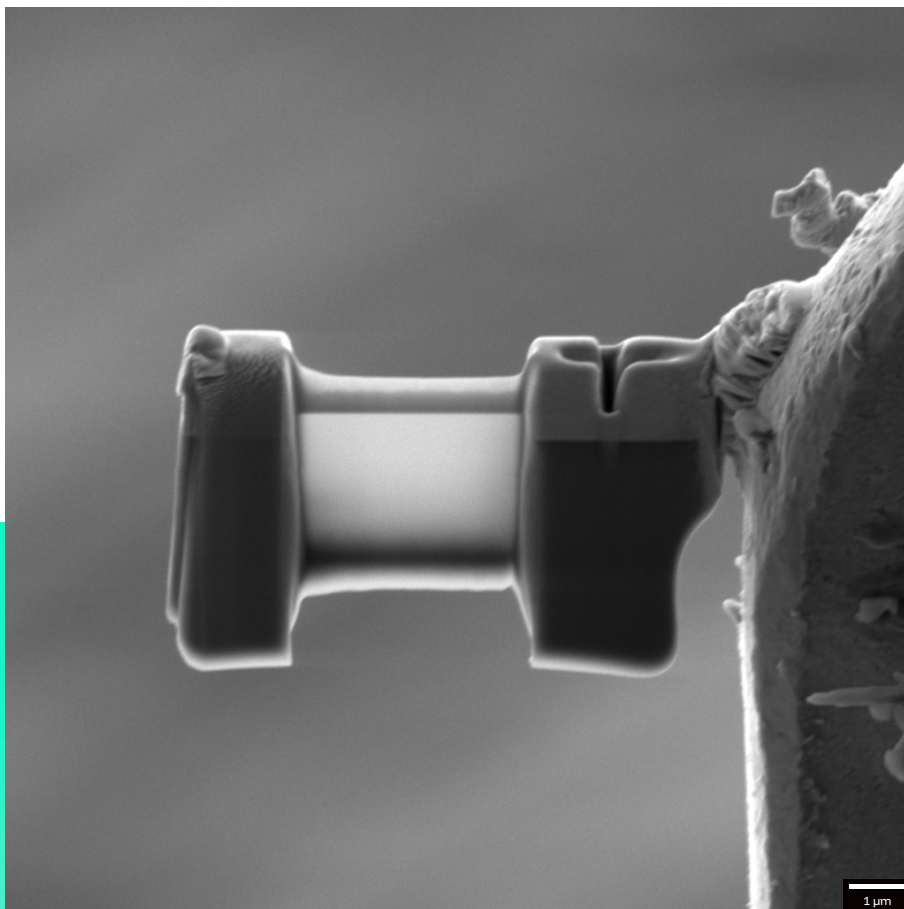
Achieve high-quality TEM samples from challenging materials by using AI-guided automation in TEM AutoPrep™ Pro, which handles delicate operations and enables automatic preparation, delivering up to 95% repeatability in standard sample quality.

Reduce operational costs and expert workload by automating repetitive preparation steps, freeing skilled personnel to focus on strategic scientific activities and improving lab resource allocation.

Streamline knowledge sharing and boost efficiency across your lab, creating, saving, and reusing optimized preparation templates tailored to different materials and user skill levels. Smart recipe adjustments reduce optimization time by approximately 66%, streamlining lab-wide knowledge sharing.

Ensure long-term process stability and consistent results by integrating AI-based monitoring at every stage of the workflow. This minimizes failure risk, sample waste, and operational downtime.

Adapt to various research needs and material types with ease, utilizing automated lift-out and geometry adjustment capabilities that allow seamless switching between planar and inverted TEM sample preparation, ensuring flexibility for diverse experimental requirements.



← TEM lamella prepared from a Si sample using a fully automated regime. The entire process was completed in less than 50 minutes, including lift-out and final low keV FIB cleaning on the grid.