Tailored Precisely to Your Applications

Typical Applications, Typical Samples	Task	ZEISS Crossbeam Offers
Cross-Sectioning and Tomography	Acquire high resolution images of your cross-section. Image and reconstruct volumes of your sample to get 3D information.	Crossbeam offers a wide range of different detection and analysis technologies, allowing a unique characterization of your sample. The Inlens EsB detector provides excellent material contrasts and can be used simultaneously with the focused ion beam. This speeds up long-lasting tomography runs. You can also acquire different detector signals simultaneously so you will get more information from your sample. The GEMINI lens design does not expose your sample to a magnetic field which allows large fields of view with homogenously high resolution. An image dimension of up to 50 k x 40 k makes stitching unnecessary. Intelligent software algorithms enable long and unattended tomography runs for best results in the shortest time.
3D-Analytics	Characterize elemental distributions, phases and the microstructure of a material such as crystal orientation, texture, stress and strain conditions.	For efficient use, different packages are provided for fully automated acquisition of 3D EDS datasets. These allow you to gather compositional information easily, even with challenging samples (magnetic or charging), in three dimensions. Crossbeam is also the perfect tool for 3D electron backscatter diffraction (EBSD). This allows complete analysis of the microstructure of crystalline materials. The analytical performance of Crossbeam enables precise and time-efficient results.
TEM Lamella Preparation	Prepare ultra-thin and stable samples for further analysis in a TEM in an automated fashion	Crossbeam offers a complete solution for the preparation of TEM lamellas. A user-friendly wizard helps to prepare numerous TEM lamellas, unattended. For the final thinning, Crossbeam provides a solution for creating the thinnest and most stable TEM lamellas by combining a high resolution FIB with the patented X^2-preparation method. End-point detection software gives you accurate information about the thickness of your lamella.
Nanopatterning	Create structures and modify surfaces of the sample with the ion or electron beam and different gases. Create surfaces with improved electronic, magnetic, optical and mechanical properties.	Get the best possible results with the integrated solution for lithography and structuring applications. You perform these tasks in real time with full control, observing the process with your SEM image. Just drag the shapes you want to create in your SEM image, set up the parameters and start patterning. For advanced fabrication tasks, Crossbeam lets you plan your work offline before you start. Design the most complex nanostructures, backed by multi-layer support, structure libraries and a large parameter space. For standard applications, the system's user-friendly workflows help new users to achieve great results. As tasks become more sophisticated, the software allows you to access almost any SEM, FIB or GIS parameter available to keep full control over your patterning tasks.

Technical Specifications

	ZEISS Crossbeam 340	ZEISS Crossbeam 540
Imaging	Schottky Emitter	Schottky Emitter
	1.9 nm @ 1 kV	1.8 nm @ 1 kV
	1.0 nm @ 15 kV	0.9 nm @ 15 kV
	0.9 nm @ 30 kV (STEM mode)	0.7 nm @ 30 kV (STEM mode)
	Beam current: 5 pA – 100 nA	Beam current: 10 pA – 300 nA
Ga FIB	LMIS: Lifetime: 3000 µAh	LMIS: Lifetime: 3000 µAh
	Resolution: <3 nm (statistical method)	Resolution: <3 nm (statistical method)
	Beam current: 1 pA – 100 nA	Beam current: 1 pA – 100 nA
Detectors	Inlens SE, Inlens Duo, ETD, SESI, STEM, BSD, CL	Inlens SE, EsB, ETD, SESI, STEM, BSD, CL
Stage	X = 100 mm, Y = 100 mm	X = 100 mm, Y = 100 mm
	Z = 50 mm, Z' = 13 mm	Z = 50 mm, Z' = 13 mm
	T = -4° to 70°, R = 360°	T = -4° to 70°, R = 360°
Vacuum System	Charge Compensation	Charge Compensation
	Variable Pressure	
Gases	Single GIS: Pt, C	Single GIS: Pt, C
	Multi GIS: Pt, C, W, Au, H_2O, I_2, SiO_x, XeF_2	Multi GIS: Pt, C, W, Au, H_2O, I_2, SiO_x, XeF_2
Scan Field	32 k x 24 k (up to 50 k x 40 k with optional ATLAS 3D)	32 k x 24 k (up to 50 k x 40 k with optional ATLAS 3D)
Analytic Options	EDS, EBSD, WDS, SIMS	EDS, EBSD, WDS, SIMS
Advantages	Maximum sample variety due to variable pressure mode, wide range of *in situ* experiments, sequential SE/EsB imaging possible.	High throughput in analytics and imaging, maximum ease of use, high resolution under all conditions, simultaneous SE and EsB imaging.