

Understanding decreasing dimensions

- *Optimized 20-120 kV operation*
- *Windows 2000 operating system*
- *High contrast imaging (BioTWIN)*
- *Multi-user environment*
- *Advanced TEM and Spectrum imaging*

Tecnai G² 12 TWIN / BioTWIN Efficiency and Flexibility for Life Sciences

Advanced preparation techniques require investigative microscopes to meet the stringent demands of Life Science research. The Tecnai G² 12 is offered in two different lens configurations: The BioTWIN for high-contrast imaging or the TWIN lens for general high-resolution purposes.

The Tecnai G² 12 TWIN, a 120 kV / LaB₆ Transmission Electron Microscope is a general-purpose instrument that enables you to explore the 2D ultra-structure of living organisms, as well as the morphology, chemical composition and function of natural and artificial materials that play a crucial role in modern society.

The Tecnai G² 12 BioTWIN, a 120 kV / LaB₆ Transmission Electron Microscope, enables you to explore the native state of low-contrast, beam-sensitive biological specimens, or other soft materials like polymers. Especially designed for these types of applications, the Tecnai G² BioTWIN features:

- High-contrast imaging
- Low-dose operation
- Low-temperature observation
- Outstanding analytical performance

The Tecnai G² 12 BioTWIN objective lens, based on FEI's highly successful original TWIN lens concept, has been designed to achieve high contrast not only in mildly stained specimens, but as well in thick, unstained cryo-specimens and soft materials.

Essential specs

Objective lens

	TWIN	BioTWIN
Point resolution (nm)	0.35	0.49
Cs objective (mm)	2.2	6.3
Cc objective (mm)	2.2	5.0
Focal length (mm)	2.8	6.1
Minimum focus step (nm)	3.0	9.0
Maximum eucentric tilt	± 70°	± 80°

Electron Source

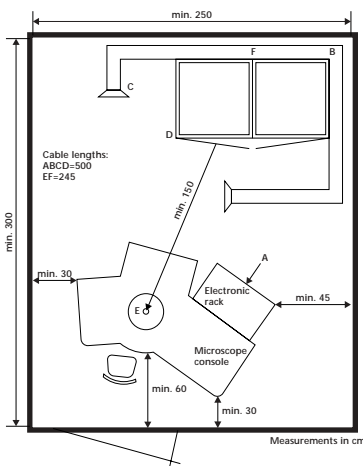
- W or LaB₆ emitter
- High voltage range 20 – 120 kV or continuously variable
- High stability and long life time of filament

Illumination system

- Four lenses
- User-selectable intensity limit for specimen protection
- User-selectable zoom for constant screen intensity

Imaging

- Five lens magnification system
- High contrast, long-focal-length objective lens (BioTWIN)
- Automated contrast enhancement function



floorplan

- Focusing aid, adjustable wobbler for all magnifications and directions
- Focus preset for focusing at eucentric position
- Rotation-free magnification and diffraction series
- Magnification reproducible within 1.5 %
- Embedded CCD and TV camera (optional)
- Plate camera with 56 sheets of film
- Low dose software optional

Micro analysis

- Embedded EDX and EELS spectrum imaging available
- Small probes (< 0.3 nm)
- no spurious / system peaks

Specimen stage

- Fully computer-controlled, eucentric side-entry, high-stability CompuStage
- Maximized tilts for any X,Y, Z, α, β combination

- Choice of a variety of specimen holders, (cryo double tilt holder)
- X, Y movement 2 mm, specimen size 3 mm
- Specimen recall reproducibility ≤ 0.5 μm (x, y) and ≤ 0.5° (α tilt) attainable
- Drift < 1 nm/min with standard holder
- High tilt (80°) and large field of view (70° tilt for TWIN)

Vacuum

- Fully interlocked differentially pumped column.
- Ultra-high vacuum for contamination free observation
- TWIN: Cryo box optional, (not EDX compatible); BioTWIN: fixed cryo shields standard (EDX compatible)
- Vacuum levels: specimen chamber and gun area 10⁻⁵ Pa
- Plate camera and specimen exchange without switching off High Tension and emitter

Operation / automation

- Operating system: Industry standard Windows 2000
- Remote Operation available
- Scripting SW module available
- 2nd Data Monitor available

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