

FEI Inspect S-50 equipment and specifications

Electron optics

- High-performance thermal emission-SEM column, with dual-anode source emission geometry, fixed objective aperture and through-the-lens differential pumping
- Filament lifetime > 100 hours

Resolution

- High-vacuum
 - 3.0nm at 30kV (SE)
 - 10nm at 3kV (SE)
 - 4.0nm at 30kV (BSE)
- Low-vacuum
 - 3.0nm at 30kV (SE)
 - 4.0nm at 30kV (BSE)
 - < 12nm at 3kV (SE)
- Accelerating voltage: 200V – 30kV
- Probe current: up to 2 μ A (continuously adjustable)

Detectors

- Everhardt-Thornley SED
- Patented, low-vacuum SED (LFD)
- Solid-state BSED (2 quadrants)
- IR-CCD
- EDS-Detector (AMETEK/EDAX)
- CL-Detector (GATAN)

Chamber vacuum

- High-vacuum: < 9e⁻⁴ Pa
- Low-vacuum: 10-270 Pa

Vacuum system

- 1 x Turbo-Molecular-Pump
- 1 x Pressure-Variable (piston)-Pump

Chamber

- 284mm left to right
- 10mm analytical WD
- 8 ports
- EDX take-off angle: 35°

4-axis motorized stage

- Eucentric goniometer stage
 - X = 50mm
 - Y = 50mm
 - Z = 50mm (25mm motorized)
 - T = -15° to +75° (manual)
 - R = 360° continuous
- Repeatability: 2 μ m

System control

- 32-bit graphical user interface with Windows XP, keyboard, optical mouse
- Image display: 1x19-inch LCD, SVGA 1280 x 1024

Image processor

- Up to 4096 x 3536 pixels
- File type: TIFF (8 or 16 bit), BMP or JPEG

EDS / CL-System

EDAX GENESIS XM 2i EDS

- Apollo XV Silicon Drift Detector
- Sensor: 10 mm²
- Resolution: at Mn K (at 100000cps) min 128 eV; at C K 52 eV
- Genesis 6.34, Team 3.1.1
 - Spectrum acquisition, SE-BSE Imaging, Mapping: SE, BSE, X-ray signal automated Multipoint analysis
 - Quant map processing: background correction; k-ratio; full matrix correction (algorithms: ZAF; hiZAF; PhiRoZ); light element corr. (SEC); standardless quantification; spectral mapping

GATAN Chroma CL

- Photomultiplier-array with housing (spectral band: 300 -800nm)
- CL302 high performance collector with 70 mm stroke
- Digital beam control unit DigiScan (uses external Scan interface of Inspect S)
- DigitalMicrograph Software for control and acquisition.
- PC-system