

# Philips Tecnai F20 TEM

## Description:

With its 200 kv acceleration voltage and its Schottky field emission source, this instrument provides a unique combination of outstanding robustness, ease-of-use and high-resolution performance in micro-analysis and TEM imaging. The standard version of the microscope incorporates well-proven advanced technologies:

- a Schottky field emission source giving ultra-high brightness, low energy spread and very small probe sizes.
- an S-TWIN objective lens for high resolution at high tilts (maximum 40°).
- a CompuStage for accurate specimen control and exceptional mechanical stability.
- for ultra-high resolution analytical microscopy the Tecnai F20 can be equipped with embedded digital STEM, EDX and Energy Filter or PEELS.

## Specifications:

### Features & Info sheet:

#### *Electron source:*

- Schottky Field emitter
- High maximum beam current (> 100 nA)
- High current in probe (0.5 nA or more in 1 nm probe)
- Small energy spread (0.7 eV or less)
- High stability and long life

#### *Imaging:*

- Patented S-TWIN objective lens (TWIN objective available)
- High tilt (40°) and large field of view (70° tilt for TWIN)
- Unsurpassed information limit (0.12 nm achievable)
- Coma-free alignment for high-resolution objective-lens centring
- Rotation-free magnification and diffraction series
- Magnification reproducible within 1.5 %
- Embedded CCD camera
- Plate camera with 56 sheets of film

#### *STEM:*

- Bright Field and Annular Dark Field mode
- Ultra-high Resolution STEM HAADF detector
- Magnification range up to 10 000 kx
- Resolution of 0.2 nm (S-TWIN)

*Micro-analysis:*

- Excellent EDX in-hole performance
- Low system background in EDX
- Small probes (< 0.3 nm)
- Embedded EDX, PEELS and Energy Filter
- Embedded EDX and EELS spectrum profiling and imaging

*Specimen stage:*

- Fully computer-controlled, eucentric side-entry, high-stability CompuStage
- Maximized tilts for any X, Y, Z, a, b combination
- Choice of a variety of specimen holders including low-background double-tilt holder
- X, Y movement 2 mm, specimen size 3 mm
- Specimen recall reproducibility  $\leq 0.1 \mu\text{m}$  (X, Y) and  $\leq 0.1^\circ$  (a tilt) attainable
- Drift < 0.5 nm/minute with a standard holder

*Vacuum:*

- Fully interlocked, differentially pumped column.
- Oil-free vacuum system with turbo molecular pump, pre-pumping column, gun and specimen airlock
- Liner tubes pumped by additional Ion Getter Pump
- Ultra-high vacuum for contamination-free observation
- Vacuum levels: specimen chamber  $2.7 \times 10^{-5}$  Pa; gun  $5 \times 10^{-7}$  Pa
- Plate camera exchange with-out switching off High Tension and emitter