

SU5000 VP-SEM with FE-gun, EDS, WDS and EBSD Detectors

The NEW Hitachi SU5000 VP-SEM with Schottky Field Emission source was recently added to EM Facility at AMRL. This large chamber microscope operates in a variable pressure as well as high vacuum modes allowing more flexibility to handle wide range of specimens. Hitachi's latest computer-assisted technology is incorporated in SU5000. The microscope has UV detector capable to image sample topography at variable pressures. THIS MICROSCOPE IS ALSO EQUIPPED WITH OXFORD EDS, WDS AND EBSD DETECTORS



Hitachi's SU5000 incorporates field emission source which are known for their stability and higher resolutions. Therefore, a SE microscope which incorporate both variable pressure technology as well as field emission source are most popular due to their versatile nature to analyze samples for a long duration with stable and finely tuned electron beam. SU5000 comes with a large area chamber which is highly useful, especially for private industry users where their specimens/products could be irregular shape than most academic user specimens. Variable pressure technology allows users to image their samples without need for conducting coating on them. This is useful when users do not want to alter their sample surface and would like to get true imaging. This technology is useful for biological and polymer samples because their insulating surface do not pose any difficulty during secondary electron imaging.

- A novel, revolutionary user interface, EM Wizard, provides all users with optimum levels of resolution, repeatability, and throughput. With EM Wizard, beginners become experts overnight.
- Automatic axis adjustment technology (auto-calibration) restores the microscope to its "best condition" on demand.
- A robust "draw-out" specimen chamber accommodates large specimens (-200 mm ϕ , -80 mmH).
- Rapid sample exchange with evacuation to observation in 3 minutes or less.
- Automated, intuitive on-demand image optimization on the fly.
- A visual and interactive guide offers 'pick and choose' SEM modes to ensure best operating conditions.

- With the 3D MultiFinder tool, samples are easily tilted and rotated with the image remaining centered and in focus.

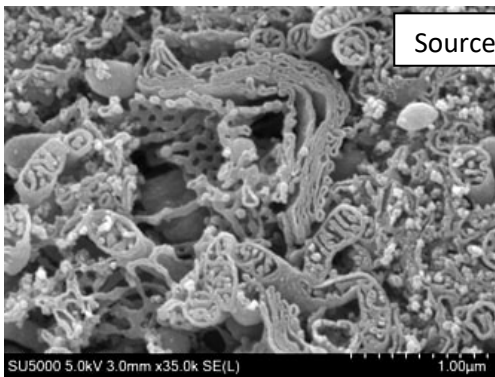
SU5000 has maximum SE resolution of 1.2nm @ 30kV. Its resolution for BSE imaging is 3.0nm @1kV and 2.0nm @1kV with Beam Deceleration. The pressure can be varied in the range of 10-300Pa. The microscope accommodates samples up to 8" diameter and up to 80mm in height.

SU5000 Features:

- ZrO/W Schottky Emission Electron Gun
- SE Resolution:
 - 1.2nm (@ 30kV, WD=5mm, Mag. 180kx)
 - 3.0nm (@1kV, WD=3mm, Mag. 80kx)
 - 2.0nm (@1kV, WD=3mm, Mag. 120kx) with Beam Deceleration
- BSE Resolution: 3.0nm (@15kV, WD=5mm, VP 10Pa)
- "EM Wizard" Feature (selectable Novice and Advanced operation modes)
- Intuitive Auto Startup Feature (HV on, focus, brightness and contrast)
- Automated Optical Axis Alignment and Astigmatism Correction Mode
- Large Variable Pressure Range: 10-300Pa
- 5-axis (X,Y, Z, R and T) Motorized Computer Eucentric Stage (100mm x 50mm)
- Accommodates 8" Diameter Specimens (Max. 80mm height)
- 5-Segment Low Impedance, Retractable BSE Detector
- 200nA of Beam Current in both HV and VP Modes
- Digital Beam Control Interface (EDS)
- Windows 10 OS, Wide Screen GUI 1920 x 1080, 64-bit
- Signal Mixing w/ Full, Small, Dual, and Quad Display
- TMP Vacuum System (water recirculation not required)
- 24" Wide LCD Flat Panel Display
- Trackball
- Variable Pressure Mode with Photo Diode BSE Detector
- Beam Deceleration Function with In-Column Top Detector
- External Communication Package
- Image Pro for Hitachi
- Stereo Function for real-time, live 3D imaging
- SEM Data Manager with CD Measurement Function
- Zigzag Image Capture w/ 10,000 image capacity
- Infrared ChamberScope (mounted on the SEM stage) with 7" Monitor (Model INC2-X) and NaviCam (Navigation Camera) "INC2-XNav"
- Ghost Drive
- Transformer
- Compressor
- Ulvac Dry Scroll Pump Assembly

Other items included:

Ultra-Variable Pressure Detector for SU5000
 Vibration Isolation Upgrade for EBSD
 Tilt Compensation Function for SU5000
 EBSD Holder for SU5000
 Xtreme Power T90-6kVA UPS System
 NS0-0204 Xtreme Power Triple Battery Pack Module



Source: Hitachi HTA

