

WINDOW FOR NANO WORLD WITH ANALYTICAL SCANNING ELECTRON MICROSCOPY **SEM 3000 Series**



EPC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

SEM 3000 Series



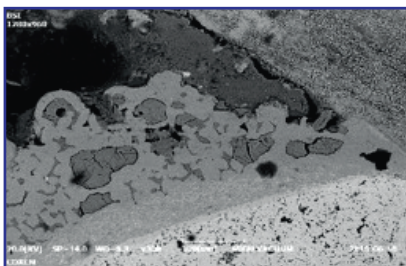
- High Quality Images (5nm resolution)
- Magnification Up To 150,000x
- Easy Navigation with the "Navigation Mode"
- Precise Control with a Joystick and the "Driving Mode"
- Combined SE and BSE Images
- Low Energy Consumption
- Intuitive User Interface

►► Specifications

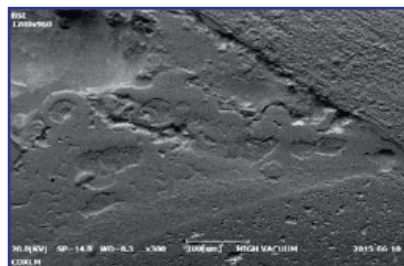
Magnification	x20-x150,000 (Effective: ~x80,000)
Acc Voltage	1-30kv (1kv increment)
Electron Gun	Tungsten Filament (W)
Detector	SE, BSE Detector (4 Channel solid type)
Stage	Auto Stage (X: 35mm,Y: 35mm,T: 0-45°)
Manual Stage	(Z: 5-50mm)
Image Shift	X, Y, R(Rotation)
Operating System	Microsoft Windows® 7
Dimensions	400(W) x 600(L) x 550(H) mm
Weight	85Kg

►► Removable BSE Detector (Back Scatter Detector)

By applying 4-channel BSE detector, composition and topography functions are available. These functions are optional and can be opted out.



BSE: Composition
Material: Alloy Metal

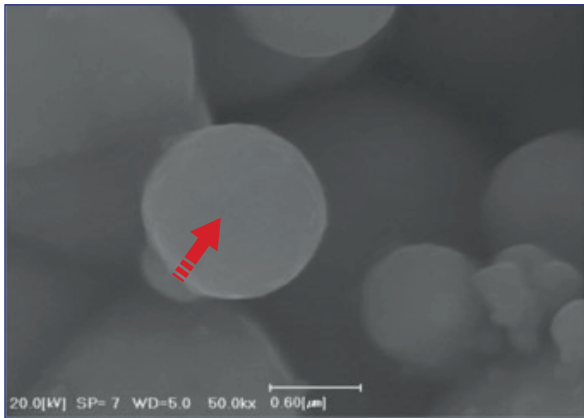


BSE: Topography
Material: Alloy Metal

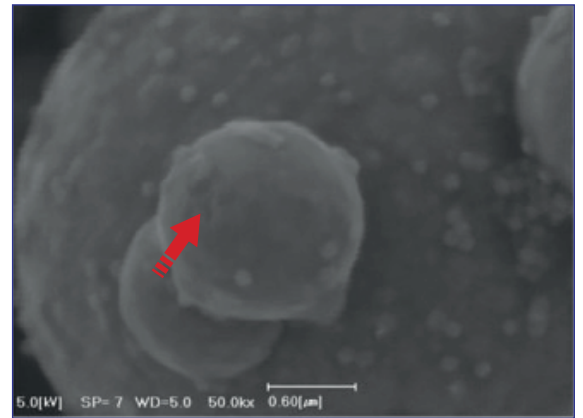


►► Low Voltage Analysis

Information on the morphology of a sample can be obtained with voltage ranging from 1 to 30kV.



ACC.Voltage: 20kV/SE Image/Mag : 50,00



ACC.Voltage :5kV/SE Image/Mag :50,00

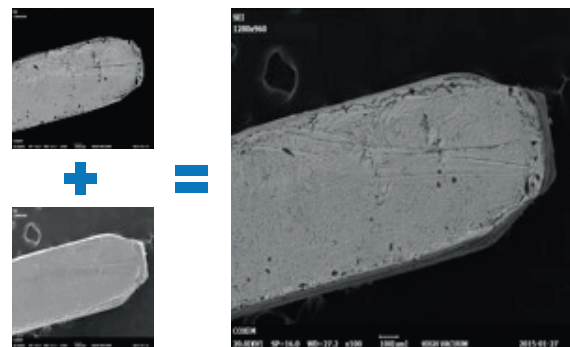
►► Driving Mode

2-axes stage motion, magnification, and focus can be easily motorized and controlled with a joystick.



►► Combined Signaling

SE and BSE can be detected separately and together.

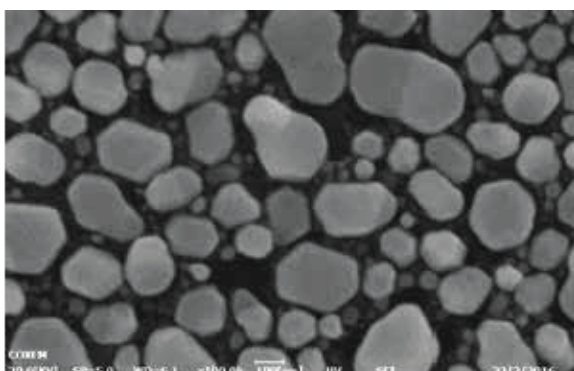


ACC.Voltage: 20kV
Material: Alloy Metal

SE+ BSE Image

►► Highest Resolution

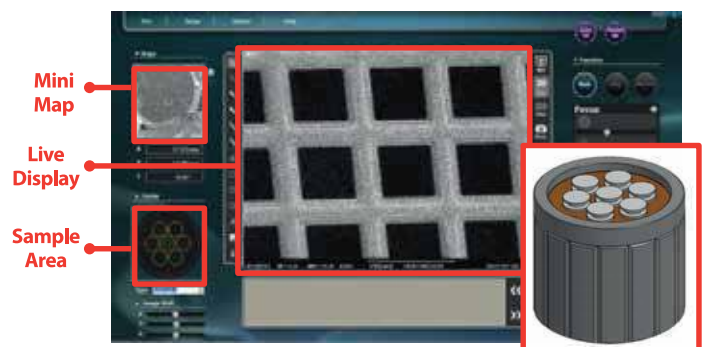
Provides high quality images (5nm resolution, Max) accelerating voltage: 30kV)



ACC. Voltage: 30kV / SE Image / Mag : x100,00

►► Navigation Mode

By loading seven samples at once into multi holder, samples can be easily located with the help of a mini map, sample area, and a live display



Multi Holder

SEM-3000AX



Magnification	x20~150,000 (Effective:~x80,000)	Stage	Auto stage (X:35mm, Y:35mm, T:0 to 45°) Manual Stage (Z:5 to 50mm)
Acc Voltage	1~30kV (1kV increments)	Image Shift	X,Y R (Rotation)
Electron Gun	Tungsten Filament(W)	Operating System	Microsoft Windows 7
Detector	SE,BSE Detector (4 channel solid type)	Dimention	400(W) x 600(L) x 550(H) mm
EDS	Oxford:130eV at Mnk; C(6) ~U(92) EDAX: 133eV at Mnk,Be(4) ~ U(92)	Weight	95kg

EDS (Electronic Data Systems)

- Tru-Q Analysis Engine: Accurate Result By Multi Algorithm.
- Highest Performance SDD.
- Multilingual Operation.
- Sensor Size : 300mm².
- Fast & Easy Analysis With Functions: Point & ID, Line Scan, Mapping, Line Overlap & Background Correction.
- High quality Light Element Analysis: Be(4)~Am(95).
- Quantitative Mapping (QuanLineScan, QuantMap).
- Diverse Element Analysis Functions: Point&ID Line Scan, Mapping.

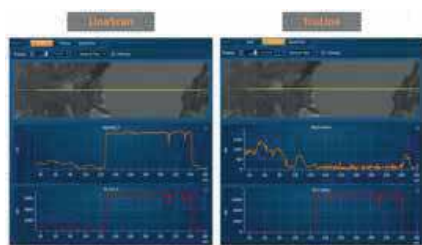
Report & Data Save

Various report templates are provided. User can generate a report with the report generate function. Data can be saved, copied, printed, and e-mailed directly



LineScan

Lines determines elemental concentration variations along a line defined by the users. Linescans are corrected for peak overlaps and any false variations due to X-ray background.



Outstanding Light Element Performance

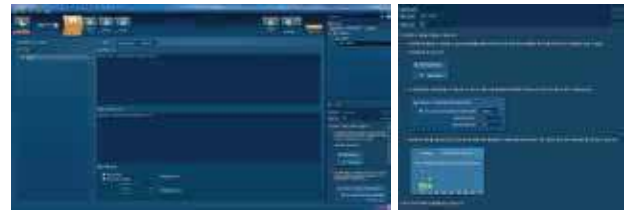
Silicon nitride window improves performance for light elements at low energies.

The TEAM[™] EDS Smart Data Management system for SEM achieves new levels of ease and flexibility with simplified file management and dynamic reporting.



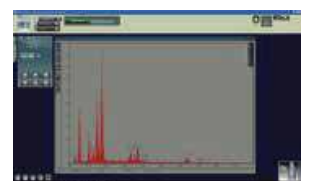
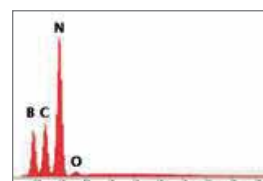
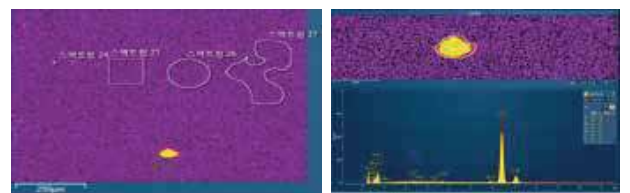
Available in Various Languages

The program is offered in various languages including Loren, English, Japanese, Chinese simplified, Russian, French, and Portuguese.



Point & ID

Spectrum that shows elemental composition can be acquired from multiple points and areas.



Fast, Efficient Results for Industrial Needs

All results can be reviewed anytime, Spectrum, microelement detection, quantitative mapping are construed accurately.



SEM-3000



- Magnification Up TO x 100,000
- Auto Stage: X,Y,T Axis
- Click & Move Stage Control
- Auto Function: Filament Memory, Focus, Contrast, Brightness
- High Definition Image: 5120 x 3840 Pixel

►► Specifications

Magnification	x20-x150,000 (Effective: ~x50,000)
Acc Voltage	1-30kv (1kv increment)
Electron Gun	Tungsten Filament (W)
Detector	SE, BSE Detector (Optional)
Stage	Auto Stage (X: 35mm,Y: 35mm,T: 0-45°) Manual Stage (Z:5 to 50mm)
Image Shift	X, Y, R(Rotation)
Operating System	Microsoft Windows® 7
Dimensions	400(W) x 600(L) x 550(H) mm
Weight	85Kg



Stage Position

Users can easily locate the sample on the stage



Auto Focus & Fine Focus

Auto focus function makes the operation easier and clearer images can be obtained even at the higher magnifications



Click & Move

By applying the auto stage, stage is controlled simply with a mouse click



Filament Memory

Filament's saturation point is automatically stored and activated

SEM-3000AX



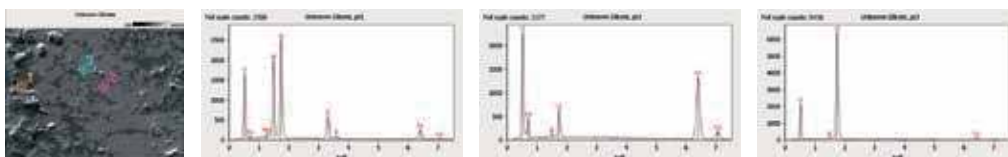
- Accurate & Fast Data Process
- High Resolution: 133eV at Mn, B(5)~U(92)
- Peltier Cooling (LN2 & Water & Fan Free)
- Ourstanding Quantitative, Qualitative Analysis

►► Specifications

Magnification	x20-x100,000 (Effective: ~x50,000)
Acc Voltage	1-30kv (1kv increment)
Electron Gun	Tungsten Filament (W)
Detector	SE, BSE Detector (Optional)
Stage	Auto Stage (X: 35mm,Y: 35mm,T: 0-45°) Manual Stage (Z:5 to 50mm)
Image Shift	X, Y, R(Rotation)
Operating System	Microsoft Windows® 7
Dimensions	400(W) x 600(L) x 550(H) mm
Weight	95Kg

Rapid EDS Analysis

Point and Shoot analysis with 7 software uses standrtdless quantitative analysis to enable reapid Indentification of various regions within a material.

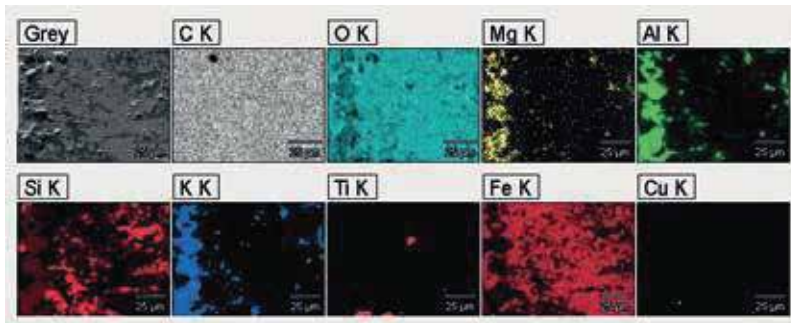


	Point #1	Point #2	Point #3
C-K	2.1	2.2	1.9
O-K	58.3	61.8	61.3
Mg-K	0.7		
Al-K	12.6	1.1	0.5
Si-K	18.3	6.7	33.9
K-K	4.2	0.1	0.1
Co-K		0.1	
Fe-K	3.7	27.0	2.3
Cu-K		0.9	
Weight percentages			

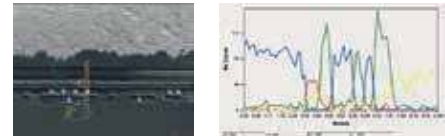
EDS Analysis with NORAN System 7 Spectral Imaging

The UltraDry Compact EDS detector provides outstanding elemental mapping within minutes. With spectral imaging, where a full EDS spectrum is stored at every pixel, sample can be analyzed after they have been removed from the microscope. NORAN System 7 tools provide several analytical methods for the best results.

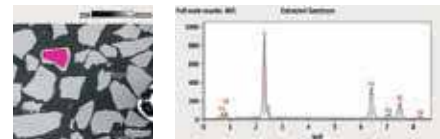
Elemental Mapping



Extracted Linescans



Extracted Area Analysis



XCX-3000TM

- Magnification Up To 300,000x
- Auto Functions: Filament, Focus, Contrast, Brightness
- High Definition Image : 5120 x 3840 Pixel

►► Specifications

Magnification	15-300,000X
Spatial Resolution	<3nm at 30kV
Vacuum Mode	HV
Acceleration Voltage	1-30kV (adjustable in 1kV scale)
Electron Source	Pre-Centered Tungsten Filament
Detector	SED (DP), BSED (DP)
Sample Size	160mm in Diameter
X,Y/Z/T Traverse R	0-60 mm/ 5-60mm/ -20-90°, 360°
Automation	Focus, Filament, Brightness/ Contrast
Data Output Format	jpg., tiff., MMP
Operating System	Microsoft Windows® 7
Dimensions	640(W) x 682(L) x 1430(H) mm
Options	STEM, Coolstage, Panorama 2.0, EDS (Oxford, Burker)
Weight	230Kg

XCX-3000TA



- Magnification Up To 300,000x
- Full Auto Stage (X,Y,R,T,Z Axis)
- Panorama Shot
- Click & Move Stage Control
- Auto Functions : Filament, Focus, Contrast, Brightness
- Higher Image Pixel : 5120 x 3840 Pixel

►► Specifications

Magnification	x15-x300,000 (Effective: ~x100,000)
Acc Voltage	1-30kv (1kv increment)
Electron Gun	Tungsten Filament (W)
Detector	SE, BSE, EDS Detector (Optional)
Stage	Auto Stage (X:40mm, Y:40mm, T:-20° to 90°, R:360° Z:5 to 60mm)
Image Shift	X, Y, R(Rotation)
Operating System	Microsoft Windows® 7
Dimensions	800(W) x 900(L) x 1500(H) mm
Weight	400Kg



Stage Position

Users can easily locate the sample on the stage



Click & Move

By applying the auto stage, stage is controlled simply with a mouse click



Filament Memory

Filament's saturation point is automatically stored and activated

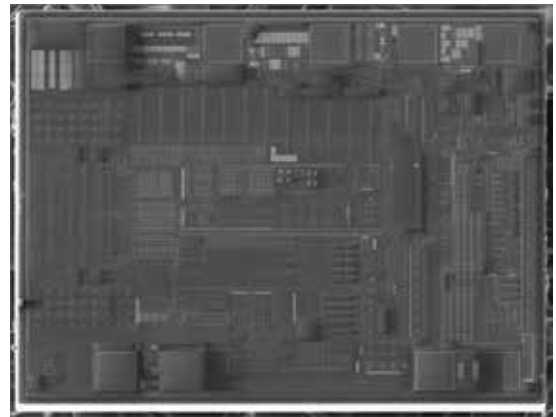
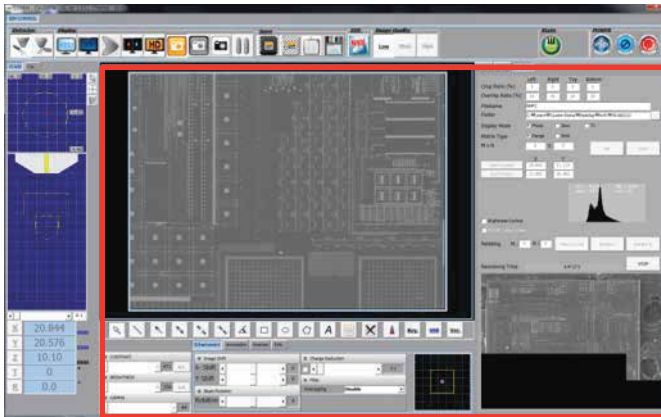


Auto Focus & Fine Focus

Auto focus function makes the operation easier and clearer images can be obtained even at the higher magnifications

Panorama Shot

Panorama shot captures images automatically on the selected area. Optimized for measuring large areas such as semiconductor surface, biological samples and metals.



Ion Coater



Model: SEM-3020

- Simple: Operation
- Complete Rotary Pump
- Suitable for Metal Targets
- (Au,Pt,Pd,Cr,Pt,-Pd,Cu,Ni)

►► Specifications

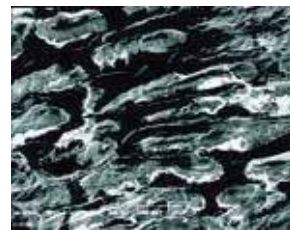
Target	Au (Standard)
Target Size	50mm [Dia]
Power	AC 110-240V, 50 / 60Hz, 50W (Except Rotary Pump)
Ionization Current	0~9mA
Chamber Size	100mm[Dia]
Dimension	420(W) x 220(D) x 230(H)mm

Cool Stage



Model: SEM-3002

- Suitable for Liquid or Biological Samples
- Cool Stage Temperature: -25°C to 50°C
- Temperature Resolution : $\pm 0.1^\circ\text{C}$
- Temperature Accuracy : $\pm 0.1^\circ\text{C}$
- Specimen Holder Size : 18mm [Dia]
- Vacuum Feed Through Flange



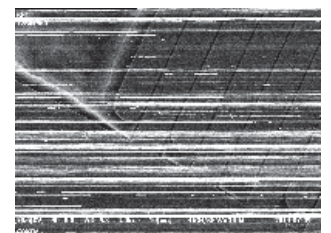
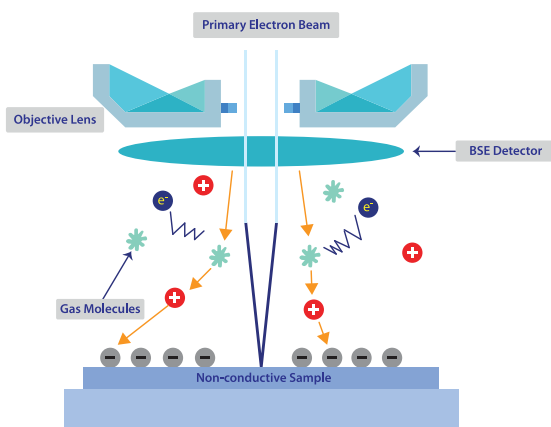
-Onion Skin
without Cool Stage



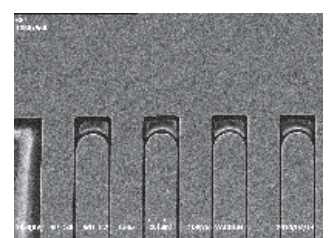
-Onion Skin
with Cool Stage

Low Vacuum System

- Suitable for Non-Conductive Samples
- BSE Required
- Coating Not Required
- Vacuum Condition : 100pa to 1 pa



-High Vacuum SE Imag

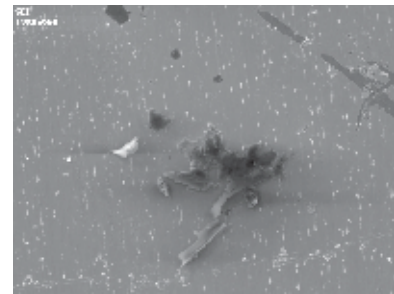
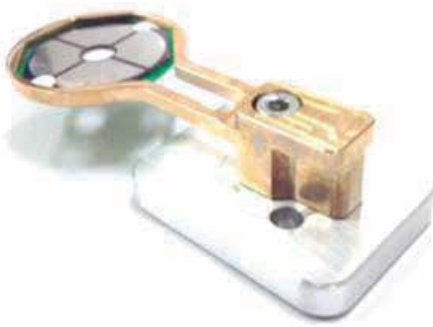


- low Vacuum BSE Image

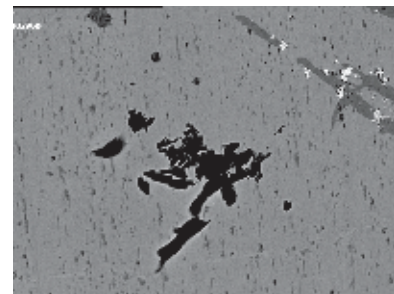
BSE Detector

Model: CSU-2

- 4 Channel Solid State Typr: 4 Segment Silicon PIN Diode
- Excellent Composition and Topography Functions
- Combined SE and BSE images
- Synergistic Use of BSE Detector and LV Mode



-SE Image of Film Surface

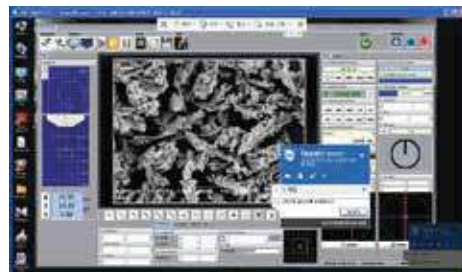


-BSE Image of Film Surface

Remote Control Service



Remote Support Using the Team Viewer Software



Supported by Professional Engineers Online

Education Vidoe



Ch 1 SEM Principle



Ch 2 Product Overview



Ch 3 Preparing Samples
& OPeration



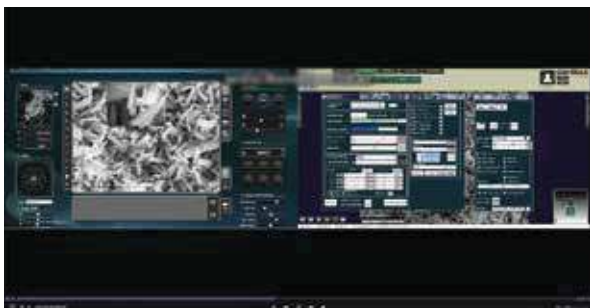
Ch 4 Maintenance

Academy



Analytical Offers Academy for Customers,
Distributors, and Professionals Regularly

Remote Demo Show



Live Demo Show at 'Analytical technical Center' Online

►► Specifications

Items/Model	SEM 3000 Series	SEM-3000AX	SEM-3000	SEM-3000AX	XCX-3000TM	XCX-3000TA
Resolution SE	5.0nm at 30kV		20nm at 30kV		3.0nm at 30kV	
Magnification	x20 ~ x150,000		x20~x100,000		x15 ~ x300,000	
effective Magnification	~ x 80,000		~ x50,000		~ x100,00	
Acceleration Voltage	1 ~ 30 kV					
Vacuum Mode	High Vacuum					
	Low Vaccum (Optional)		-		Low Vaccum (Optional)	
EDS	External (Optional)	External (Optional)	External (Optional)	External (Optional)	External (Optional)	
Maximum Specimen Size	60mm in diameter				160mm in diameter	
Stage	3-Axes Motorized				3-Axes Motorized	3-Axes Manual
X	0~35mm				0~40mm	0~40mm
Y	0~35mm				0~60mm	0~40mm
T	0~45°				-20~90°	-20~90°
Z	5~50mm (Manual)				5~60mm	5~60mm (Motorized)
R	360° (Raster)				360°	360° (Manual)
Observation Area	40mm in diameter				110mm in diameter	
Maximum Height	45mm				55mm	
Electron Gun	Pre-centered Cartridge					
Source	Tungsten					
Detector	SE					
	BSE (Standard)		BSE (Optional)			
Control	Mouse					
	keyboard					
	Joystick		-			

Aoto Image Adjustment	Aoto Brightnees & Contrast				
	Auto Filament				
	Auto Start				
Special Features	Navigation View		Measurement Tool		Panorama Shot
	Special Multi Holder		Remote Control		HD Mode
	Signal Mixing (SE+BSE)		-		Dual Display
	Dual Display (SE+BSE)				Measurement Tool
	BSE(Compo, Toto)				Remote Control
	Line Profile				-
	Image Process				
	Measurement Tool				
	Remote Control				
Options	EDS	-	EDS	-	EDS
	-		EDS		
	Low Vacuum		-		Low Vacuum
	Cool Stage				

Application

Automotive



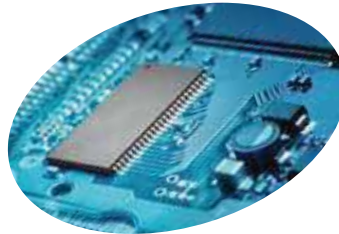
Semiconductor



Wire Bonding



Chip Layer



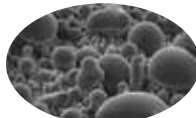
Chip Cross-Section



Si Wafer



Solder Ball



Package Material



PCB

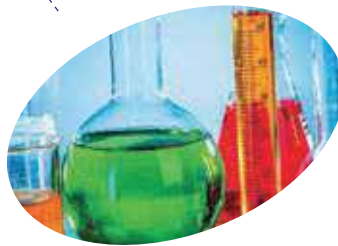
Chemical



Fiber



ZrO₂



Silver



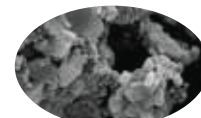
TiO₂



CNT



Lithium



Carbon



Silica

Materials



Grain Boundary



Crack



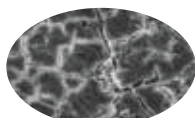
Wire



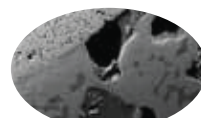
Implant



Heater



Al Deposition

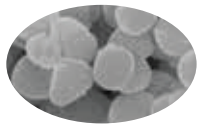


Alloy Metal



Drill

Bioengineering



Virus



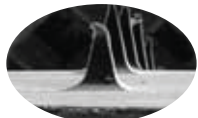
Bacteria



Fungus



Cells



Patch



Tablet

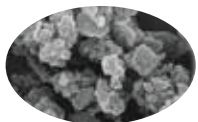


Implant



Coffee

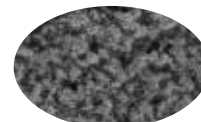
Construction



Paint



Water Filter



Painting



Wood



Iron Plate



Stone



Sand

►►► Regulatory compliances



►►► Corporate Social Responsibility

Analytical Foundation is a Nonprofit Organization (NGO) found for the purpose of:



Analytical Foundation

1. Research & Innovation Scientist's awards / QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personalities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops / Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXYFY human minds, souls and body by means of Yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

4. buy our products and be a part of social cost of analytical foundation.

►►► Reach us @



Analytical[®] Technologies Limited

HPLC Solutions MultipleLabs Analytical Bio-Med Analytical Distributors Analytical Foundation (Trust)

Corporate & Regd. Office:
Analytical House, # E67 & E68,
Ravi Park, Vasna Road, Baroda,
Gujarat 390 015. INDIA

T: +91 265 2253620
+91 265 2252839
+91 265 2252370
F: +91 265 2254395

E: info@hplctechnologies.com
info@multiplelabs.com
info@analyticalgroup.net
info@analyticalbiomed.com

W: www.ais-india.com
www.analyticalgroup.net
www.hplctechnologies.com
www.multiplelabs.com

Sales & Support Offices:
across the country :
Distributors & Channel
partners World Wide

Note : Company reserves rights to add/delete/modify the contents / technical specifications of the catalogue without prior notice.