



IEM 10

IEM 10+

IEM 11

IEM 11+

SEMoscope®

Scanning Electron Microscope

We believe that every laboratory working in the field of nanotechnology needs an SEM, therefore we would like to introduce to you our IEM series of SEM. In short space of time, our device that is the size of an old computer will prove its effectiveness, and will help you achieve a significant step in your research. The advantage of the images obtained by SEM lies in the high magnification factor: you will be able to magnify an image by up to 150,000 times which will enable you to conduct analyses up to a nanoscale using different detectors such as BSE, SE and EDS (X-ray detector). The SEM can be used in many areas and there is no restriction to analyses on samples. Another important factor to purchase our SEM is to avoid waiting the annoying time for obtaining images from a nearby facility, instead of that your images can be available in an unbelievable short time. Our SEMs are easy to operate and your employees or students can use it without any waste of time in a special training.

Inovenso Team



Why

?

Quick and simple installation
and no maintenance needed

1

3 Times More affordable
than other SEMs

2

Obtaining results in less than
4 minutes

3

Magnification range:
x20 ~ x150,000

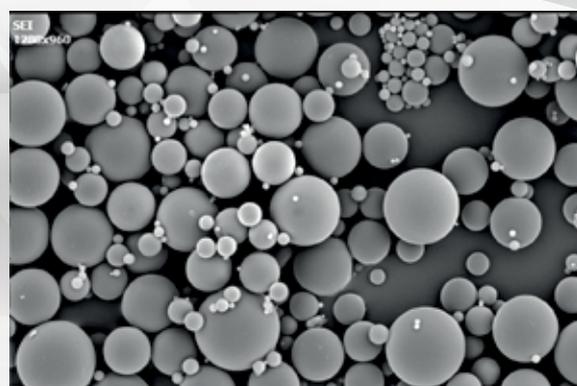
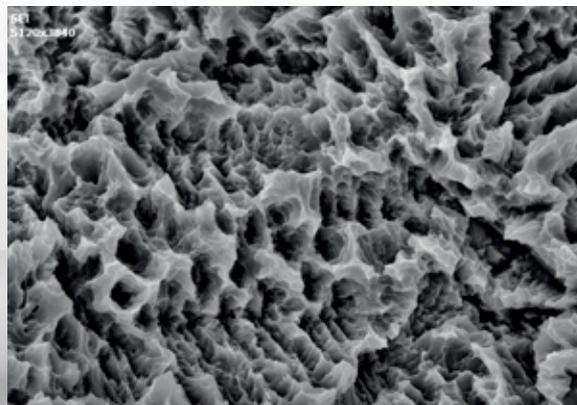
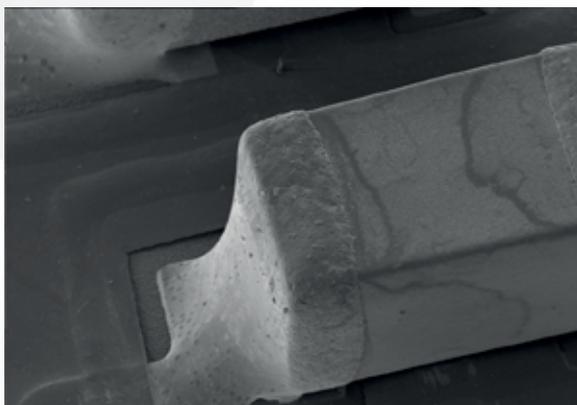
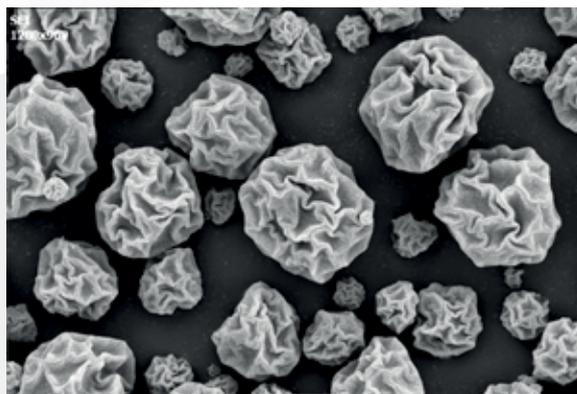
4

5 nanometer resolution

5

Easy Navigation with the
User-Friendly Software

6





- ⚡ 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 ~ x100,000 (Efficient: ~x50,000)	Image Shift	X, Y, R(Rotation)
Acc Voltage	1 ~ 30 kV (1kV increments)	Operating System	Microsoft Windows 7
Electron Gun	Tungsten Filament (W)	Dimensions (mm)	400(W) x 600(L) x 550(H)
Detector	SE Detector	Dimensions (inch)	15,74(W) x 23,62(L) x 21,65(H)
Stage	Auto Stage (X: 35mm,Y: 35mm,T: 0 to 45°) Manual Stage (Z: 5 to 50mm)	Weight	85(kgs) - 187 (lbs)



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

Auto Focus & Fine Focus

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



Filament Memory

Filament's saturation point is automatically stored and activated



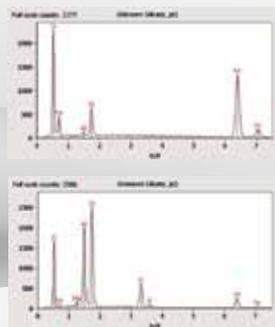
- ⚡ Magnification Up To x 100,000
- ⚡ Auto Stage: X, Y, T Axis
- ⚡ Click & Move Stage Control
- ⚡ Auto Function: Filament Memory, Focus, Contrast, Brightness
- ⚡ High Definition Image: 5120 X 3840 Pixel
- ⚡ Thermo EDS Detector: 133 eV at Mn, B(5) ~ U(92)

Specifications

Magnification x20 ~ x100,000 (Efficient: ~x50,000)
Acc Voltage 1 ~ 30 kV (1kV increments)
Electron Gun Tungsten Filament (W)
Detector SE and EDS Detectors
Stage Auto Stage (X: 35mm,Y: 35mm,T: 0 to 45°)
 Manual Stage (Z: 5 to 50mm)

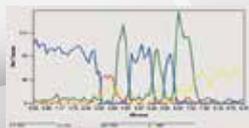
Image Shift X, Y, R(Rotation)
Operating System Microsoft Windows 7
Dimensions (mm) 400(W) x 600(L) x 550(H)
Dimensions (inch) 15,74(W) x 23,62(L) x 21,65(H)
Weight 95(kgs) - 210(lbs)

- **Rapid EDS Analysis**
 Point and shoot an alysis with NORAN System 7 software uses standardless quantitative analysis to enable rapid identification of various regions within a material.

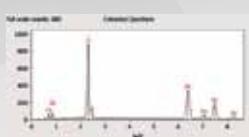
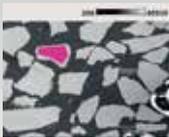


	Point #1	Point #2	Point #3
C-K	2.1	2.2	1.9
O-K	58.3	61.8	61.3
Mg-K	0.7		
Al-K	12.6	1.1	0.5
Si-K	18.3	6.7	33.9
K-K	4.2	0.1	0.1
Co-K		0.1	
Fe-K	3.7	27.0	2.3
Cu-K		0.9	
Weight percentages			

Extracted Linescans



Extracted Area Analysis



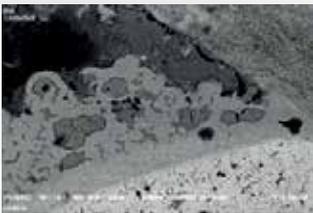
- **EDS Analysis with NORAN System 7 Spectral Imaging**
 The UltraDry Compact EDS detector provides outstanding elemental mapping within few minutes. With Spectral Imaging, where a full EDS spectrum is stored at every pixel, samples can be analyzed after they have been removed from the microscope. NORAN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

- ⚡ 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

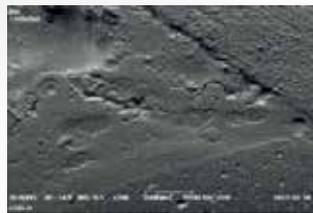


Specifications

Magnification	x20 ~ x100,000 (Efficient: ~x50,000)	Image Shift	X, Y, R(Rotation)
Acc Voltage	1 ~ 30 kV (1kV increments)	Operating System	Microsoft Windows 7
Electron Gun	Tungsten Filament (W)	Dimensions (mm)	400(W) x 600(L) x 550(H)
Detector	SE Detector	Dimensions (inch)	15,74(W) x 23,62(L) x 21,65(H)
Stage	Auto Stage (X: 35mmY: 35mm,T: 0 to 45°) Manual Stage (Z: 5 to 50mm)	Weight	85(kgs) - 187(lbs)



SE: Composition
Material: Alloy Metal



BSE: Topography
Material: Alloy Metal

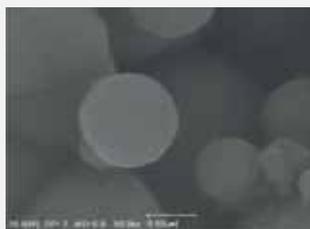


Removable BSE Detector

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

Low Voltage Analysis

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



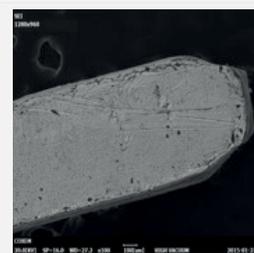
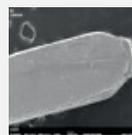
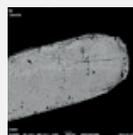
Driving Mode



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

Combined Signaling

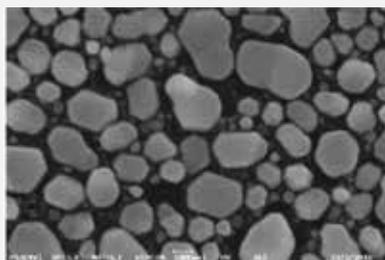
SE and BSE can be detected separately and together.



ACC.Voltage: 20kV
Material: Alloy Metal

SE + BSE Image

Highest Resolution

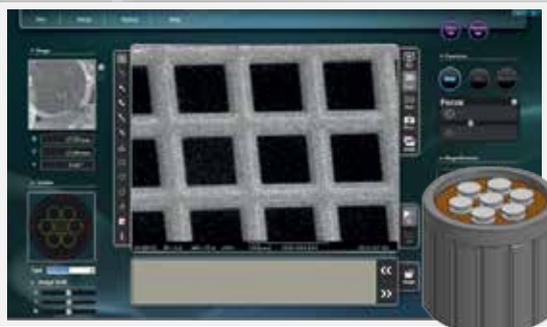


ACC. Voltage : 30kV / SE Image / Mag : x100,000

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

Driving Mode

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



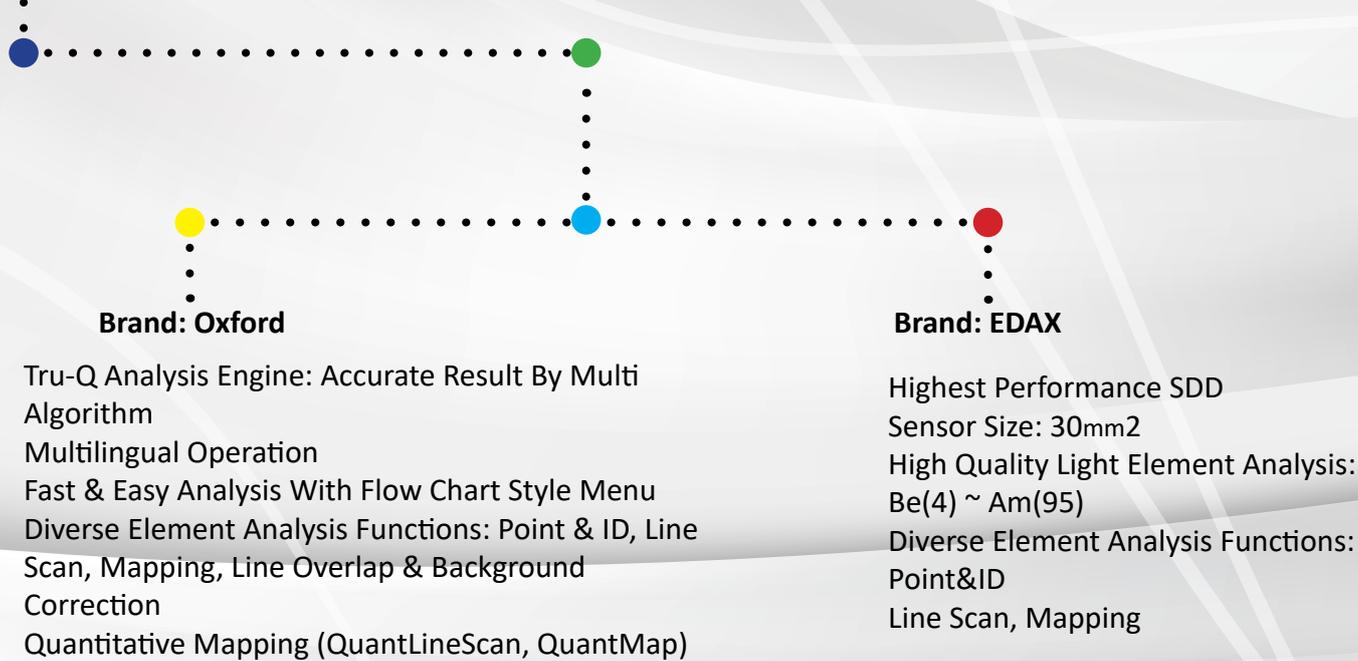


- ⚡ High Quality Images (5nm resolution)
- ⚡ Magnification Up To 150,000x
- ⚡ Easy Navigation with the "Navigation Mode"
- ⚡ Precise Control with a Joystick and the "Driving Mode"
- ⚡ Combined SE and BSE Images
- ⚡ Low Energy Consumption
- ⚡ Intuitive User Interface
- ⚡ Oxford:130eV at Mnk, C(6) ~ U(92) / EDAX:133eV at Mnk, Be(4) ~ U(92)

Specifications

Magnification	x20 ~ x150,000 (Efficient: ~x80,000)	Image Shift	Auto Stage (X: 35mm, Y: 35mm, T: 0 to 45°) Manual Stage (Z: 5 to 50mm)
Acc Voltage	1 ~ 30kV (1kV increments)	Operating System	Microsoft Windows 7
Electron Gun	Tungsten Filament (W)	Dimensions (mm)	400(W) x 600(L) x 550(H)
Detector	SE and BSE Detectors	Dimensions (inch)	15,74(W) x 23,62(L) x 21,65(H)
EDS	Oxford:130eV at Mnk, C(6) ~ U(92) EDAX:133eV at Mnk, Be(4) ~ U(92)	Weight	95(kgs)- 210(lbs)

EDS



Oxford

⚡ - Report & Data Save
 Various report templates are provided. Users can generate a report with the Report Generate function. Data can be saved, copied, printed, and e-mailed directly.



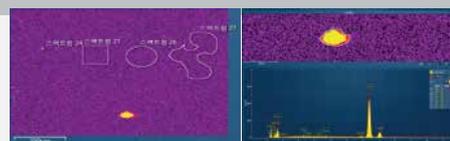
⚡ - Available in Various Languages
 The program is offered in various languages including English, Japanese, Chinese simplified, Russian, French, Korean and Portuguese.



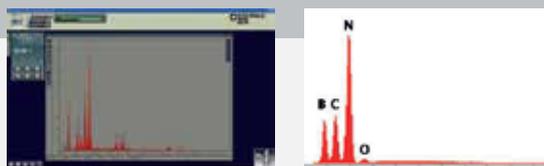
⚡ -LineScan
 Linescan determines elemental concentration variations along a line defined by the users. Linescans are corrected for peak overlaps and any false variations due to X-ray background.



⚡ - Point & ID
 Spectrum that shows elemental composition can be acquired from multiple points and areas.



EDAX



Outstanding Light Element Performance ⚡

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



EDS Reporting ⚡

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



Fast, Efficient Results for Industrial Needs ⚡

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

Ion Coater

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



Target Au (Standard)

Target Size 50mm[Dia]

Power AC110-240V, 50 / 60Hz, 50W
(Except Rotary Pump)

Ionization Current Oxford:130eV at Mnk, C(6) ~ U(92)
EDAX:133eV at Mnk, Be(4) ~ U(92)

Chamber Size 100(mm)[Dia]

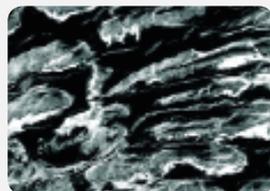
Dimension (mm) 420(W)x220(D)x230(H)

Dimension (inch) 15,74(W)x 8,66(D)x 9,05(H)

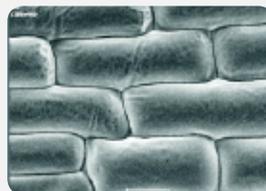
Cool Stage



- ⚡ Suitable for Liquid or Biological Samples
- ⚡ Cool Stage Temperature: -25oC to 50oC
- ⚡ Temperature Resolution: ± 0.1 oC
- ⚡ Temperature Accuracy: ± 1 oC
- ⚡ Specimen Holder Size: 18(mm)[Dia]- 0,70(inch) [Dia]
- ⚡ Vacuum Feed Through Flange

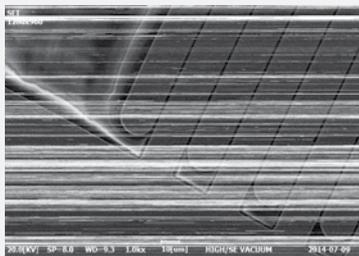


Onion Skin
without Cool Stage

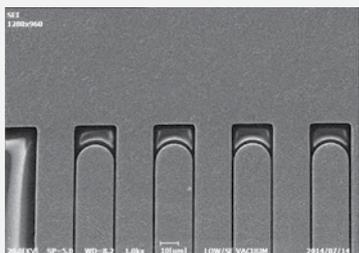


Onion Skin
with Cool Stage

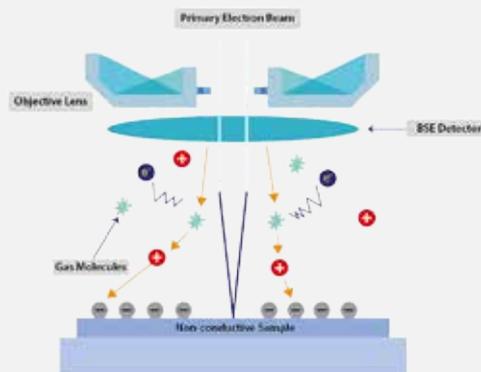
Low Vacuum System



-High Vacuum SE Image



-Low Vacuum BSE Image



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

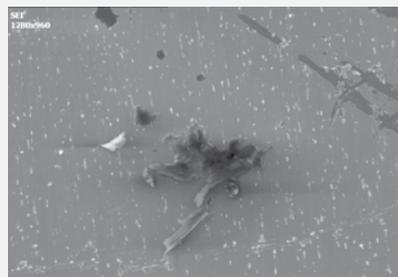
BSE Detector



- ⚡ 4 Channel Solid State Type: 4 Segment
- ⚡ Excellent Composition and Topography
- ⚡ Functions
- ⚡ Combined SE and BSE Images
- ⚡ Synergistic Use of BSE Detector and LV Mode

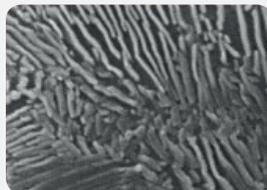


-SE Image of Film Surface

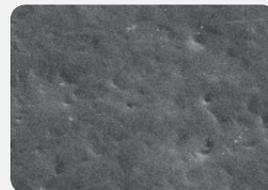


-BSE Image of Film Surface

Automotive



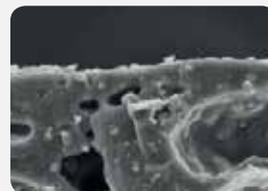
Iron Plate



Glass

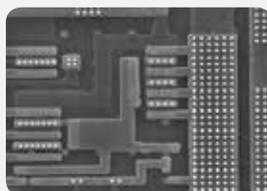


Filter

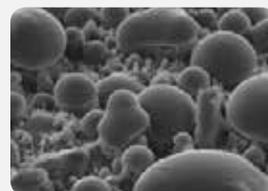


Tire

Semiconductor



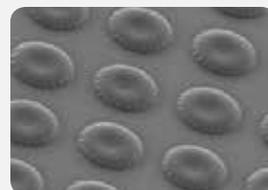
Chip Layer



Package Material

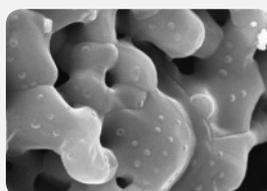


PCB

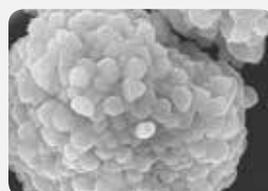


Si Wafer

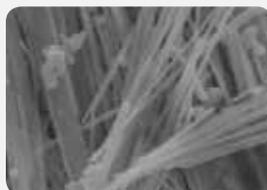
Chemical



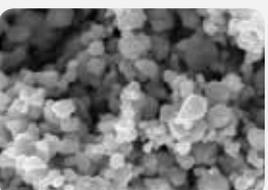
ZrO₂



Package Material

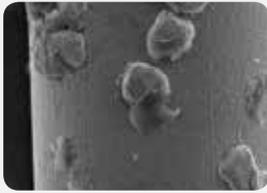


Fiber

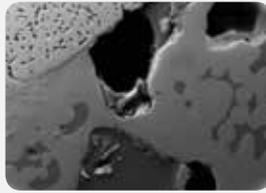


Silver

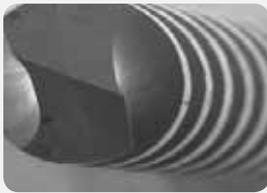
Materials



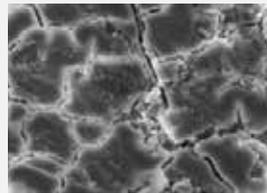
Wire



Alloy Metal



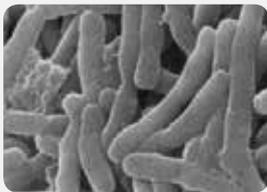
Drill



Al Deposition



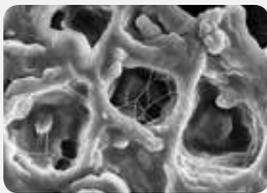
Bioengineering



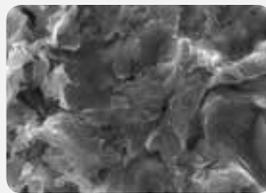
Bacteria



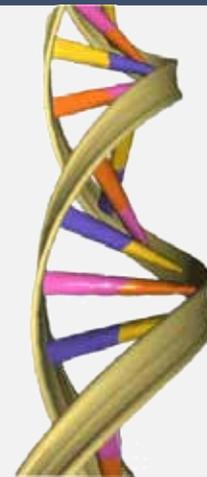
Fungus



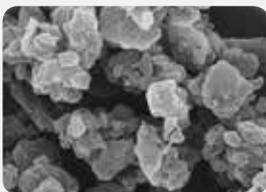
Coffee



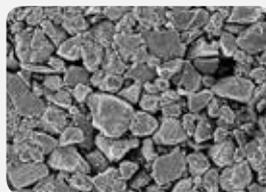
Implant



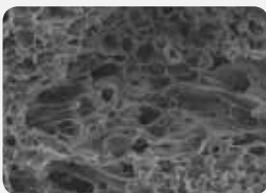
Construction



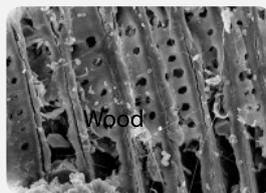
Paint



Water Filter



Stone



Wood



Comparison Table

Items/Model	IEM - 11	IEM - 11+	IEM - 10	IEM - 10+
Resolution SE	5.0nm at 30kV		20nm at 30kV	
Magnification	x20 ~ x150,000		x20 ~ x100,000	
Efficient Magnification	~ x80,000		~ x50,000	
Acceleration Voltage	1 ~ 30 kV			
Vacuum Mode	High Vacuum			
	Low Vacuum (Optional)		-	
EDS	External (Optional)	Integrated (Standard)	External (Optional)	Integrated (Standard)
Maximum Specimen Size	60 (mm) - 2,36 (inch) in diameter			
Stage	3-Axes Motorized			
X	0~35(mm) - 1,37(inch)			
Y	0~35(mm) - 1,37(inch)			
T	0~45 (mm) - 1,77(inch)			
Z	5~50(mm) (Manual)			
R	360° (Raster)			
Observation Area	40(mm) - 1,57(inch) in diameter			
Maximum Height	45(mm) - 1,77(inch)			
Electron Gun	Pre-centered Cartridge			
Source	Tungsten			
Detector	SE			
	BSE(Standard)		BSE(Optional)	

Control	Mouse			
	Keyboard			
	Joystick		-	
Auto Image Adjustment	Auto Focus			
	Auto Brightness & Contrast			
	Auto Filament			
	Auto Start			
Special Features	Navigation View		Measurement Tool	
	Special Multi Holder		Remote Control	
	Signal Mixing (SE+BSE)		-	
	Dual Display(SE/BSE)			
	BSE(Compo,Topo)			
	Line Profile			
	Image Process			
	Measurement Tool			
	Remote Control			
Options	EDS	-	EDS	--
	-		BSED	
	Low Vacuum			
	Cool Stage			



SEMoscope®

Scanning Electron Microscope



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