

MODULESCI

Modular Instrumentation
for Nano Imaging
Scanning Electron Microscope





Overview

PV-100 Series Introduction

PE-100 Series Introduction

PE-300 Series Introduction

Sample Holder, BSE, EDS

Specifications & Installation Space



ModuleSci was established in 2017, offering high-resolution electron microscopes based on field emission electron guns and objective lens technology developed with the cooperation of the Korea Research Institute of Standards and Science (KRISS). We offer both standard Tungsten Filament SEMs with a resolution of about 100,000x, and high-performance FE-SEM at a price point significantly lower than most of our competitors.

Building on our experience in both electron and light optics, we have also commercialized a correlative light and electron microscope allowing users to observe both electron and optical images simultaneously. This technique allows the user to utilize the unique properties of optical and fluorescent microscopy coupled with the nano-scale resolution of electron microscopy.

With a corporate culture focused on continuous product development and innovation, ModuleSci is quickly becoming a leader in the global nanotechnology market.



MODULESCI PV-100 Series

The PV-100 is our entry-level Tabletop SEM with a tungsten filament electron source, designed for laboratories where space is at a premium. But the small size doesn't mean you need to compromise on features: the PV-100 comes with a 5-axis stage, and the new GUI simplifies operation while allowing both novice and expert users to easily obtain high-quality images. With an effective magnification of 70,000 x, the PV-100 is ideal for routine imaging at medium and low magnifications

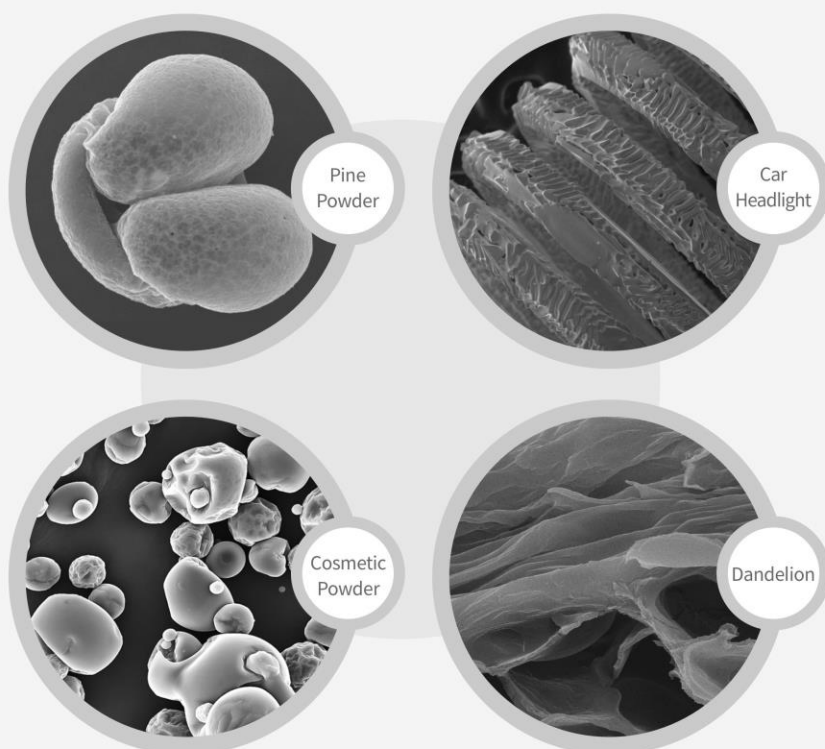
FEATURES

- Sample exchange time within 60s
- Magnification 20 x to 300,000 x
- Cost effective compared to others
- Motorized 5-axis (X, Y, Z, R, T) stage
- Available simple and fast installation

OPTIONS

- SE (PV-100)
- SE & EDS (PV-100+)
- SE & BSE (PV-150)
- SE, BSE & EDS (PV-150+)

EXAMPLES



SPECIFICATIONS

Dimension(mm)	400(W) x 620(L) x 680(H)	Electron Gun Vac. System	10 ⁻⁶ torr
Electron Source	Tungsten Filament	Accelerating Voltage	1 ~ 30 kV
Resolution	5.0 nm	Motorized Stage	X, Y, Z, R, T
Magnification	20 x ~ 300,000 x	Vacuum System	Rotary Pump, TMP
Effective Magnification	~ 70,000 x		



ModuleSci

PE-100 Series

The PE-100 is a compact SEM with full-size performance. Supplied with a tungsten filament source, the PE-100 has an effective magnification of over 100,000 x . Ideal for imaging larger samples due to its oversize chamber, the PE-100 comes with an impressive set of features typically seen on more expensive microscopes, including both a Navigation Camera and a Chamber Camera for increased versatility.

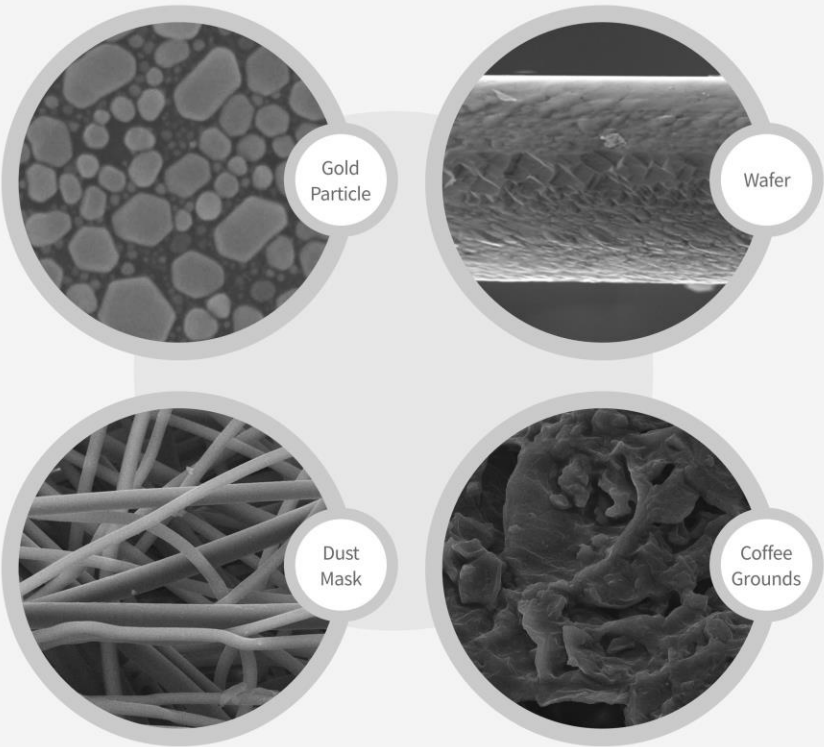
FEATURES

- Magnification 20 x to 300,000 x
- Motorized 5-axis (X, Y, Z, R, T) stage
- Sample exchange time within 60s
- Navigation Cam, Chamber Cam
- Easy to take large samples

OPTIONS

- SE (PE-100)
- SE & EDS (PE-100+)
- SE & BSE (PE-150)
- SE, BSE & EDS (PE-150+)

EXAMPLES



SPECIFICATIONS

Dimension(nm)	670(W) x 780(L) x 1450(H)	Electron Gun Vac. System	10 ⁻⁶ torr
Electron Source	Tungsten Filament	Accelerating Voltage	1 ~ 30 kV
Resolution	3.0 nm	Motorized Stage	X, Y, Z, R, T
Magnification	20 x ~ 300,000 x	Vacuum System	Rotary Pump, TMP
Effective Magnification	~ 100,000 x		



MODULESCI PE-300 Series

The PE-300 is a Field Emission (Schottky) SEM with high resolution and contrast, allowing users to obtain detailed image information. The PE-300 features our innovative compact FE electron gun made of mild steel with double O-ring sealing providing fast and accurate gun axis adjustment. With superior quality and a competitive price, the PE-300 is the ideal tool when your application requires high resolution and exceptional imaging.

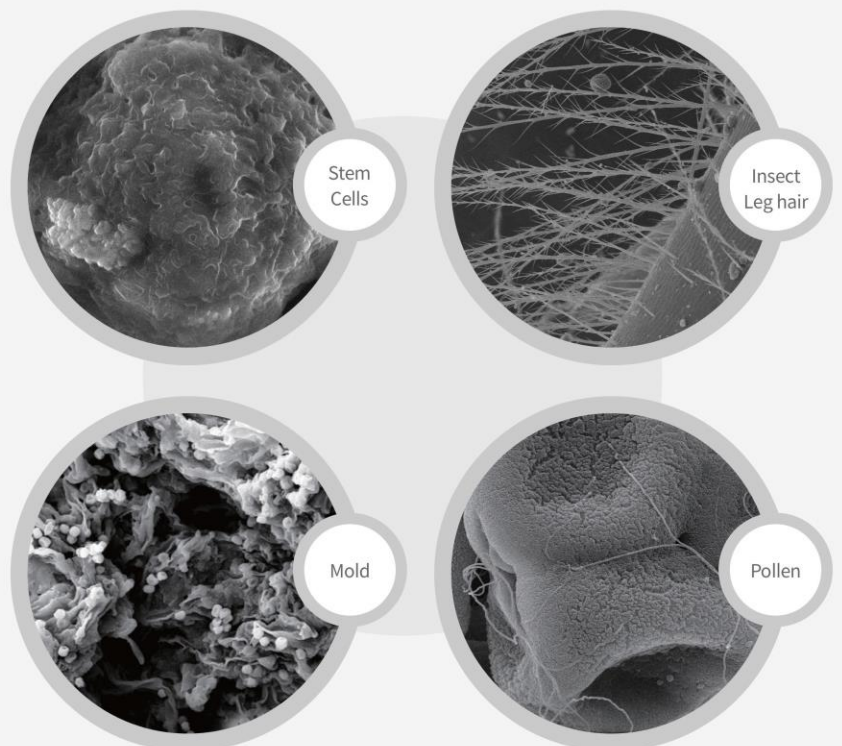
FEATURES

- Magnification 20 x to 300,000 x
- Sample exchange to imaging within 90s
- High quality images (2.0 nm resolution)
- Motorized 5-axis (X, Y, Z, R, T) stage
- Vacuum maintenance until next filament replacement (after first installation of electron gun filament)
- Easy maintenance

OPTIONS

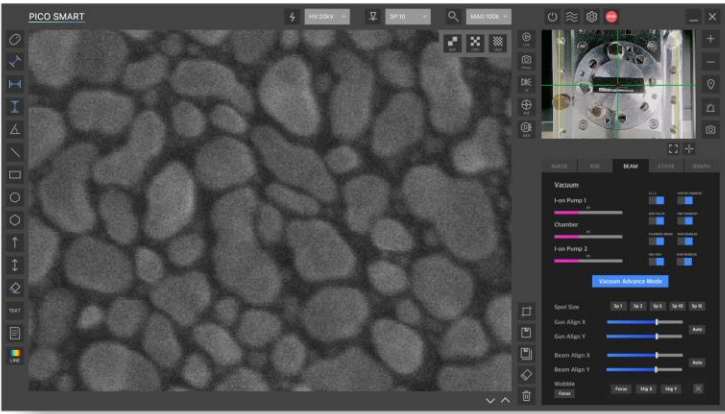
- SE (PE-300)
- SE & EDS (PE-300+)
- SE & BSE (PE-350)
- SE, BSE & EDS (PE-350+)

EXAMPLES



SPECIFICATIONS

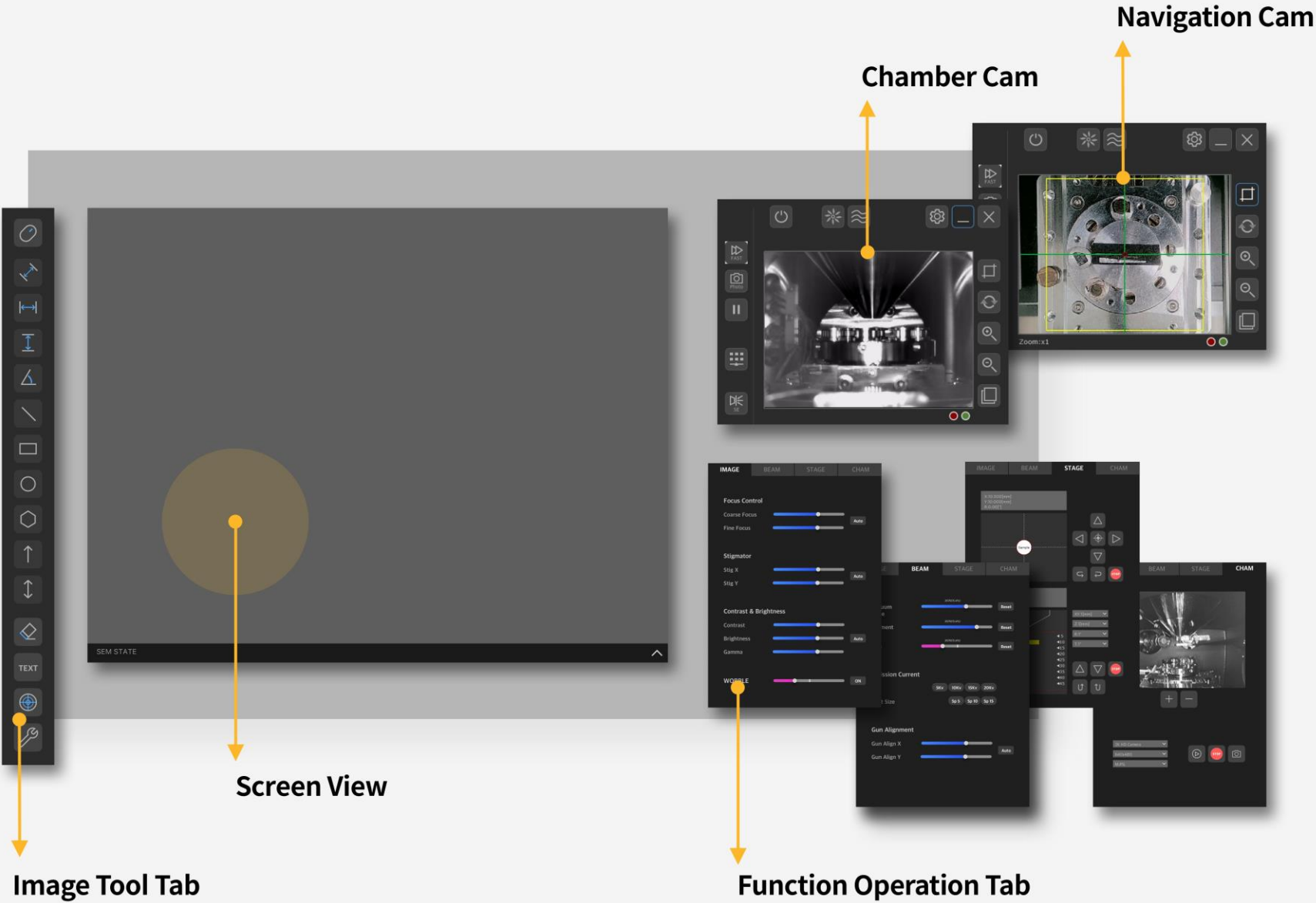
Dimension(mm)	760(W) x 850(L) x 1650(H)	Electron Gun Vac. System	10 ⁻¹⁰ torr
Electron Source	FE (Schottky)	Accelerating Voltage	0.5 ~ 30 kV
Resolution	2.0 nm	Motorized Stage	X, Y, Z, R, T
Magnification	20 x ~ 300,000 x	Vacuum System	Rotary Pump, TMP, Ion Pump
Effective Magnification	~ 200,000 x		



Open Application Interface

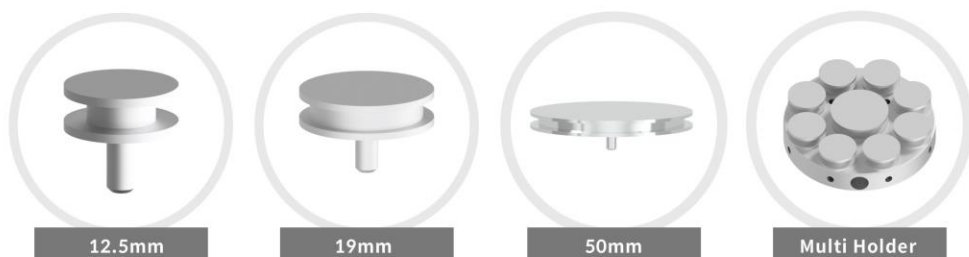
PICOSMART software features an intuitive GUI, making it easy for novice users to generate high-quality images quickly and easily. Advanced automation features guide the user through the imaging process, while a comprehensive suite of analysis tools ensures accurate sample characterization.

FEATURES

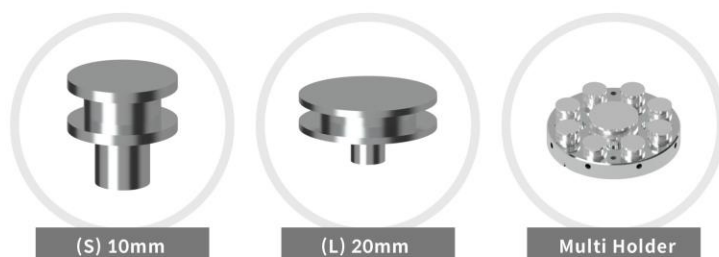


Specimen Holder

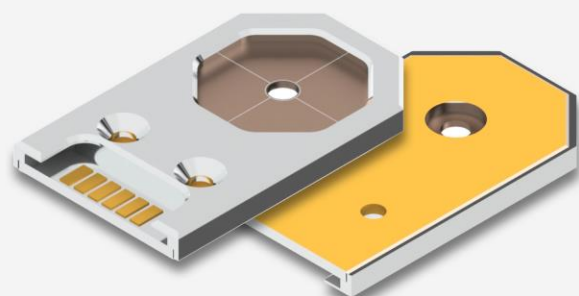
PV-100 Specimen Holder



PE-100 Specimen Holder

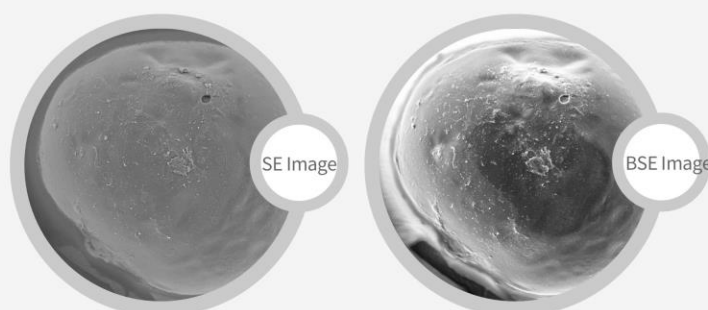


BSE Detector (Back Scattered Electron)



Our 4 Quadrant BSE detector can be configured in either Composition Mode (all 4 quadrants selected) or Topographic Mode (any 2 quadrants selected).

A BSE detector can be used to help determine elemental composition by collecting electrons that are reflected, or scattered, by elements of different atomic number. Elements with a higher atomic number, or “Z”, will appear as brighter areas in the sample. BSE detectors are also useful for rapidly determining the number of phases in a sample, and their relationship to one another.



EDS Detector (Energy Dispersive X-ray Spectroscopy)

BRUKER



OXFORD

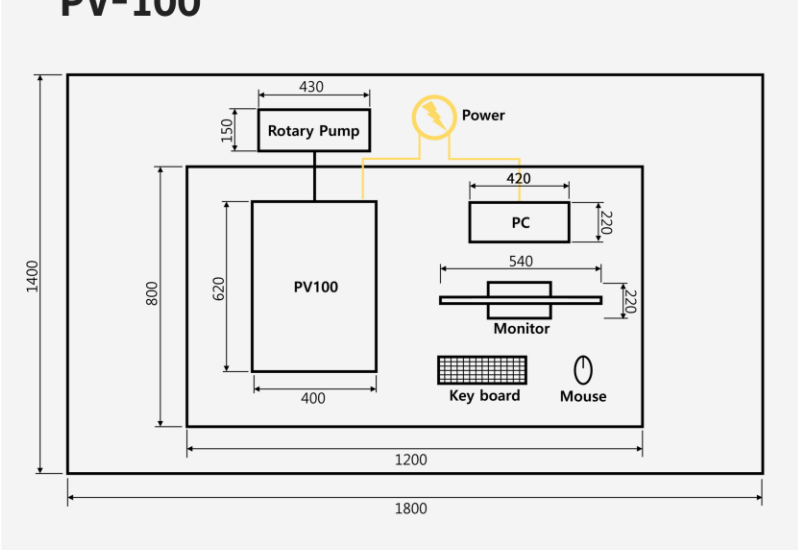


Specification Table

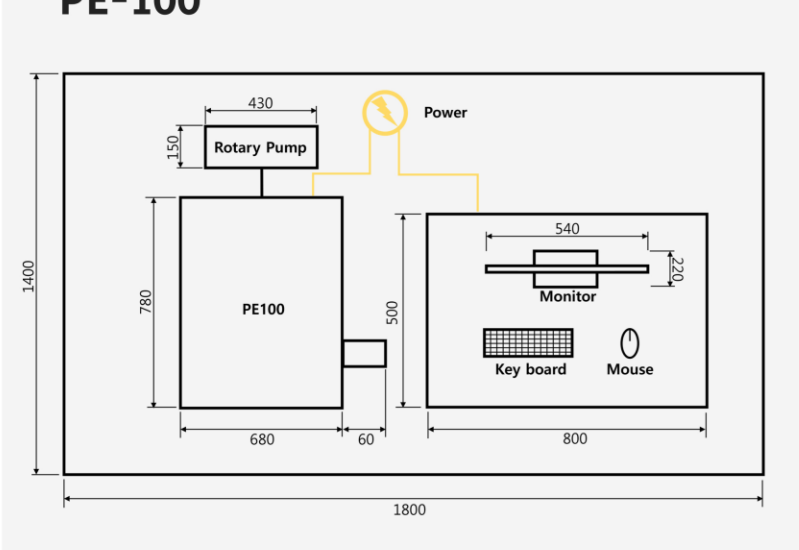
Items / Model	PV-100	PE-100	PE-300
Resolution	5.0 nm	3.0 nm	2.0 nm
Magnification	20 x ~ 300,000 x	20 x ~ 300,000 x	20 x ~ 300,000 x
Acceleration Voltages	1 to 30Kv	1 to 30Kv	0.5 to 30Kv
Vacuum Mode	High Vacuum		
Maximum Specimen Size	100(D) x 40(H)	140(D) x 45(H)	140(D) x 45(H)
Observation Size	X=50 ,Y=50		
Stage	5 Axis Motorized		
X	0 ~ 50 mm		
Y	0 ~ 50 mm		
Z	5 ~ 35mm	5 ~ 50mm	
R	360°		
T	- 10° ~ 90°	- 20° ~ 45°	
Maximum Height	30	45	
Electron Gun	Tungsten		Field Emission
Detector	SED(Standard)		
Control	Mouse		
	Keyboard		
	Joystick(Monogram)		
Auto Function	Auto Gun Align / Auto Focus / Auto Brightness / Auto Contrast		
Option	EDS / BSE / Monogram		
Dimension	400(W) x 620(L) x 680(H) mm	670(W) x 780(L) x 1450(H) mm	760(W) x 850(L) x 1650(H) mm
Weight	110Kg	310Kg	410Kg


Installation Space

PV-100



PE-100





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