Specification

Hitachi S-4800 Field Emission Scanning Electron Microscope

1. Used Field Emission Scanning Electron Microscope (FE-SEM)

1-1 Performance (FE-SEM)

3) Image resolution	:	1.0nm at 15kV
	:	1.4nm at 1kV
4) Accelerating voltage	:	0.5 to 30kV
5) Magnification	:	LM mode 20x to 2,000x
	:	HM mode 100x to 800,000x

1-2 Sample Stage (Type I)

1) Movement	:	X: 50mm, Y: 50mm , Z: 1.5 ~ 30mm
		Tilt: -5° ~ +70° , Rotation : 360°
2) Sample size	:	100mm (Max)
3) Sample holder	:	25mm
4) Sample exchange	:	Airrock type
5) Stage drive	:	X,Y,Z,T,R - 5-axis Fully Motorized

1-3 Electron Optics

1) Electron Gun	:	Cold field emission source (Life time : minimum 5 years)
Lens System	:	3-stage electromagnetic lens
2) Objective apergure	:	4-openning, selectable & alignable from outside the vacuum
3) Stigmator	:	Electromagnetic octapole type
4) Scanning coil	:	2-stage electromagnetic deflection

1-4 Display System

1) Imaging signal	:	Secondary Electron Image (SEI)
2) Display	:	19 inch viewing (TFT LCD Monitor x1ea)
3) Frame memory	:	640 X 480, 1,280 X 960, 2,560x1,920, 5,120x3,840 pixels
4) Image processing	:	Auto image Brightness control
		Auto image Contrast control
		Dynamic stigmator monitor
6) Electrical image shift	:	±12um (W/D = 8mm)
7) Auto data display	:	Number, Accelating voltage, magnification, micron bar
8) Windows	:	Window XP

1-5 Vaccum Control

1) System	:	Full automatic, pneumatic valve control
2) Ultimate vacuum	:	Electron gun (10^{-7} Pa)
		Sample chamger (10^{-4} Pa)
3) Vacuum pump	:	IP x 1 : 60L/s
		IP x 2 : 20L/x
		IP-3 : 7 × 10-5 Pa or better
		Turbomolecular Pump (300 l/s) x 1ea
		Rotary pump (133 l/min) x 1ea
4) Vacuum gauge	:	Sample chamber (Penning gauge)
		Exchange chamber (Pirani gauge)