

Q25扫描电子显微镜

简单易用并且负担得起的高低真空高分辨样品表征工具

用于表征宽范围的材料样品，Q25SEM简单易用为应对研究需求的多样性提供了灵活性和多功能。Q25提供了所有数据：表面和成分像与元素分析结合起来可以用来确定材料性能如结构和元素组成。

今天的研究超越了简单的金属和喷镀样品，Q25可以应对传统样品的表征-金属、断口和抛光的截面，也可以应对不导电软材料---快速轻松地减少您的研究人员的在仪器上的时间。用户界面简单易学，而且足够灵活地处理更加有挑战性的研究。例如标准的导航功能包括双击样品台移动及缩放。SmartSCAN™ 技术采用聪明的扫描策略使得更容易减少噪声和提供更好的数据。在设计时考虑到各种经验水平的用户，Q25的易用性是最好的。

更好的数据、更多的灵活性、高效。Q25允许快速简单的操作以便快速获取答案以及为投资带来更多价值。

KEY BENEFITS

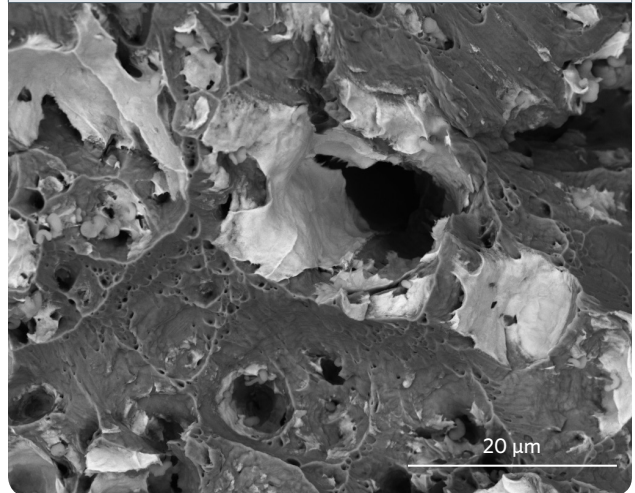
简单易用，即使是新手利用直观的软件可实现高效操作。

快速轻松表征导电和非导电样品

样品制备工作最少化：低真空下可以对不导电无荷电成像和分析

支持可选的分析功能。利用独有的多级穿过透镜的真空系统在高真空和低真空下使导电样品和不导电样品的精确EDS分析成为可能。

利用稳定的高束流（上至2 μ A）电子束可以迅速获得精确的分析结果。



↑ 黄铜断口背散射图像展示了成分信息



Essential Specifications

Electron Optics

- High performance thermal emission SEM column with dual anode source emission geometry
- Fixed objective aperture for ease of operation
- 45° objective lens geometry with through-the-lens differential pumping
- Maximum horizontal field width: 6.5 mm at analytical working distance (10 mm); 11.3 mm at 25 mm WD
- Accelerating voltage: 200 V - 30 kV
- Probe current: up to 2 μ A, continuously adjustable
- Magnification: 13 to 1000000x
 - Easy filament change using pre-centered tungsten filaments (requires alignment of the Wehnelt cap)

Electron Beam Resolution

- High vacuum
 - 3.0 nm at 30 kV (SE)
 - 4.0 nm at 30 kV (BSE)*
 - 8.0 nm at 3 kV (SE)
- Low vacuum
 - 3.0 nm at 30 kV (SE)
 - 4.0 nm at 30 kV (BSE)*
 - 10 nm at 3 kV (SE)

Chamber

- 284 mm size left to right
- 10 mm analytical WD
- 8 ports
- EDS take-off angle: 35°

Detectors

- Everhart-Thornley SED for topographic contrast in high vacuum operation
- Large Field GSED (gaseous secondary electron detector) for topographic contrast in low vacuum operation
- 2-channel directional back-scatter detector for topographic and materials contrast
- Infrared chamber camera for monitoring sample position
- Supports optional energy dispersive spectrometer (EDS) detectors for elemental composition analysis

Vacuum System

- 1 \times 70 l/s TurboMolecular Pump
- 1 \times Pre-vacuum Pump
- Chamber vacuum (high vacuum)
 - $< 1 \times 10^{-5}$ Pa
- Chamber vacuum (low vacuum)
 - 10-270 Pa
- Evacuation time: ≤ 150 s to high vacuum and ≤ 270 s to low vacuum (standard FEI test procedures)

Sample Holders

- Multi-stub holder (7 stubs)
- Single stub mount, mounts directly onto stage

System control

- 32-bit graphical user interface with Windows®XP, keyboard, optical mouse
- One 19-inch LCD display, SVGA 1280 x 1024
- Scan presets

Image Processor

- Dwell time range from 0.025 - 25000 μ s/pixel
- Up to 4096 \times 3536 pixels
- File type: TIFF (8, 16, 24 bit), BMP or JPEG, standard
- Single-frame or 4-view image display
- SmartSCAN (256-frame average or integration, line integration and averaging, interlaced scanning)
- DCFI (Drift Compensated Frame Integration)

*optional

Documentation

- Online user manual
- Prepared for RAPID (remote diagnostic support)

Warranty and Training

- 1 year warranty
- Choice of service maintenance contracts
- Choice of operation / application training contracts

Consumables (Partial List)

- Replacement tungsten filaments
- Apertures
- Pump oil for rotary pump

Installation Requirements

(Refer to preinstall guide for detailed data)

- Power:
 - Voltage 100-240 V AC (-6%, +10%)
 - Frequency 50 or 60Hz ($\pm 1\%$)
 - Consumption: < 3.0 kVA for basic microscope
- Earth resistance < 0.10 Ω

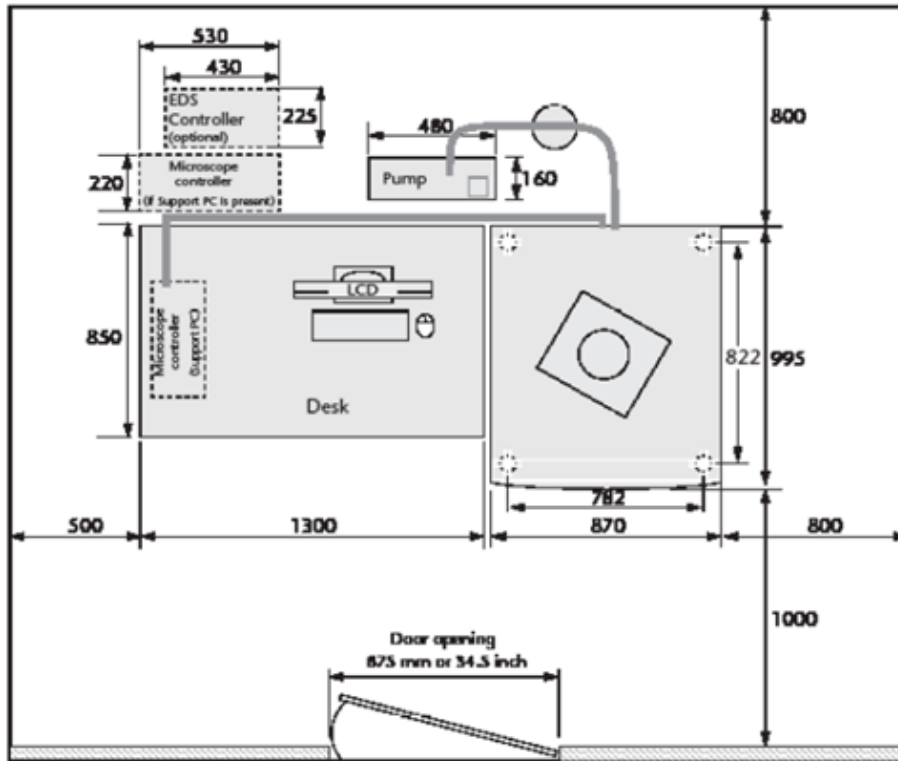
- Environment:
 - Maximum temperature for operation 15-25° C, relative humidity below 80% RH (non-condensing)
 - Stray AC magnetic fields
 - < 100 nT a-synchronous,
 - < 300 nT synchronous for line times,
- Minimum door size: 0.9 m wide
- Weight: column console 450 kg
- Dry nitrogen: system (0.7 to 0.8 bar, max 10 l/min during vent); dry pump (1.0 bar, 2 l/min)
- Acoustics: < 68 dBC, site survey required as acoustic spectrum relevant
- Floor vibrations: site survey required as floor spectrum relevant
- Optional vibration isolation table

Energy conservation

- Energy Star compliant monitors and PC systems
- System designed to operate without water chiller or compressed air
- System employs a vacuum buffer tank which reduces pre-vacuum pump operation by approximately 90%

STAGE SPECIFICATIONS	
Type	Eucentric goniometer stage, 4-axes motorized
XY	50 × 50 mm
Repeatability	< 3.0 μm (@ 0° tilt)
Motorized / manual Z	25 mm / 25 mm
Rotation	n × 360°
Tilt	-15° / +75°
Max. sample height	Clearance 75 mm to eucentric point
Max. sample weight	500 g in any stage position (up to 2 kg at 0° tilt)
Max. sample size allowing full x,y range and rotation	100 mm diameter (6mm thick / tall)

Floor Plan



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