Specification Sheet | Microscopes

Phenom Pro

Most professional desktop SEM imaging



Phenom Pro

High-end desktop SEM with superb imaging power

Magnification Magnification range up to 130,000x

Acceleration voltages

Between 5 kV and 10 kV acceleration voltages for the best resolution on a large variety of samples

Never lost navigation Swift navigation to any region of interest with zoom and full color functionality





The Phenom Pro is Phenom-World's high-end imaging desktop SEM. In combination with a large range of sample-holders and automated system software, it can be tailored to suit a multitude of applications.

Phenom Pro

Phenom-World is focused on enabling its customers to keep pace with continuously shrinking feature sizes and to increase productivity while bringing down the costs of analysis. The Phenom Pro is the most effective and fastest imaging oriented desktop SEM on the market. Its unique design makes it suitable for use in a wide variety of applications and markets. With custom-made detection hardware, a high brightness source and a state-of-the-art color navigation camera, it is an extremely powerful desktop SEM. The zoom functionality of the color navigation camera narrows the gap between optical and SEM imaging. The combination of a touch screen and the option of working with an optical mouse allow even faster and more accurate navigation. The Phenom Pro is the platform that offers automated and mechanized accessories such as ProSuite and active sample holders.

The Phenom Pro can be upgraded to Phenom ProX with EDS or equipped with the Phenom ProSuite.

Imaging Specifications

Imaging modes		Digital image detection		
> Light optical	Magnification range: 20 - 135x	> Light optical	Color navigation camera	
> Electron optical	Magnification range: 80 - 130,000x Digital zoom max. 12x	> Electron optical	High-sensitivity backscattered electron detector (compositional and	
Illumination			topographical modes)	
> Light optical	Bright field / dark field modes	Image formats	JPEG, TIFF, BMP	
> Electron optical	Long-lifetime thermionic source (CeB ₆)	Image resolution		
> Acceleration voltages	Default: 5 kV, 10 kV	options	456 x 456, 684 x 684, 1024 x 1024	
	Advanced mode: adjustable range		and 2048 x 2048 pixels	
	between 4,8 kV and 10 kV imaging			
	mode	Data storage	USB flash drive	
> Resolution	≤ 14 nm		Network	
		Sample stage	Computer-controlled motorized X and Y	
		Sample size	Up to 32 mm (Ø)	
			Up to 100 mm (h)	
		Sample loading time		
		> Light Optical	< 5 s	

> Electron Optical < 30 s





Never lost navigation

The color navigation camera in the Phenom Pro provides information that helps the operator to make a link between the optical and electron-optical images. Users are ready to take images after only 10 minutes of basic training. A large variety of sample holders is available for the Phenom Pro to accommodate a large range of samples. Sample loading is fast and easy due to our patented sample vacuum loading technology.

The optical camera, motorized stage and intuitive user interface work together to help you navigate swiftly to any region of interest. Just choose the position you want to investigate on the optical image and the stage automatically centers the region of interest. Switching to electron imaging mode is fully automated

System Specifications

System	Imaging module		
	19" monitor		
	Rotary knob		
	Mouse		
	Diaphragm vacuum pump		
	Power supply		
	USB flash drive		
Dimensions & Weight			
>Imaging module	286(w) x 566(d) x 495(h) mm, 50 kg		
> Diaphragm			
vacuum pump	145(w) x 220(d) x 213(h) mm, 4.5 kg		
> Power supply	156(w) x 300(d) x 74(h) mm, 3 kg		
> Monitor	375(w) x 203(d) x 395(h) mm, 7.9 kg		

and fast at the touch of just one button. A high resolution image is available within 30 seconds after loading the sample. Saving images is practical and easy on a USB memory stick or network storage location for off-line analysis and distribution.

The Phenom Pro is equipped with two acceleration voltages: 5 kV and 10 kV. This allows the users of the Phenom Pro to make higher resolution images at the same magnification, providing even more details from the sample than before. At the same time, the Phenom Pro can be used with the lower beam current setting. The combination of two different acceleration voltages and two beam current settings offers a high level of flexibility, creating the best results for a large variety of samples.

Requirements

Ambient conditions

- > Temperature
- > Humidity
- > Power
- Recommended

table size

15°C ~ 30°C (59°F ~ 86°F) < 80 % RH Single-phase AC 110 - 240 Volt, 50/60 Hz, 300 W (max.)

120 x 75 cm, load rating of 100 kg



ProSuite

ProSuite

ProSuite is an optional application system that has been developed to further enhance the capabilities of the Phenom system. ProSuite enables maximum information to be extracted from images obtained on the Phenom imaging system. It offers multiple solutions to specific application needs. ProSuite contains standard applications such as Automated Image Mapping and Remote User Interface. Optional applications are 3D Roughness Reconstruction, FiberMetric, ParticleMetric, and PoroMetric. Virtually all the properties of a sample can be revealed using the Phenom desktop SEM in combination with ProSuite.



Phenom ProX

Upgrade to Phenom ProX

The Phenom ProX is the ultimate all-in-one imaging and X-ray analysis system. With the ProX, sample structures can be physically examined and their elemental composition determined. The optional Elemental Mapping and Line Scan software allow further analysis of the distribution of elements. A dedicated software package is included and installed on the ProSuite PC to control the fully integrated EDS detector. Analysis has become as easy as imaging, since there is no need to switch between external software packages or computers. The latest Phenom Pro models can be upgraded to Phenom ProX at Phenom-World service hubs. Contact your local sales representative for details.

ProSuite Specifications		EDS Specifications	
System	Automated collection of images Real-time remote control	Detector type	Silicon Drift Detector (SDD) Thermoelectrically cooled (LN, free)
	Intuitive single-page user interface	> Detector active Area	25 mm ²
	Standard applications included: Automated Image Mapping & Remote User Interface	>X-ray window	Ultra-thin Silicon Nitride (Si ₃ 3N ₄ 4) window allowing detection of elements B to Am
		> Energy resolution	Mn Kα ≤ 137 eV
Optional 3D Roughness		> Processing capabilities	Multi-channel analyzer with 2048 channels at 10 eV/ch
Reconstruction	Based on "shape from shading"	> Max. input count rate	300,000 cps
	technology, no stage tilt required Fast reconstruction	> Hardware integration	Fully embedded
FiberMetric	Fast and automated collection of all statistical data Large range of fibers and pores can be measured	Software	Integrated in Phenom ProSuite Integrated column and stage control Auto-peak ID Iterative strip peak deconvolution Confidence of analysis indicator
ParticleMetric	Morphology and particle size data for submicron particle applications		Export functions: CSV, JPG, TIFF, ELID, EMSA
		Report	Docx format
PoreMetric	Fully automated visualization and analysis of pores		

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