thermoscientific

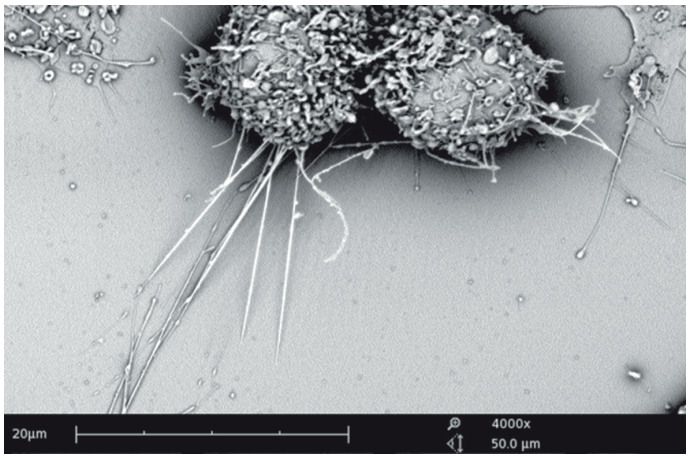
PRODUCT SPECIFICATIONS

MICROSCOPE - Phenom Pure Generation 5

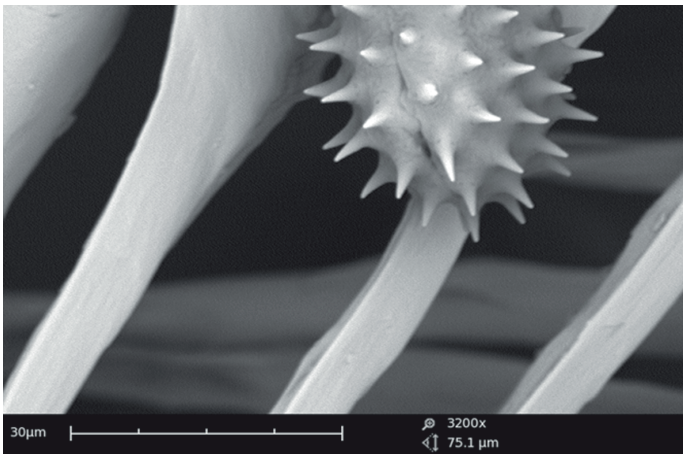
Phenom Pure Desktop SEM

Basic SEM for high resolution images

ThermoFisher
SCIENTIFIC



Biological cells



Pollen on insect

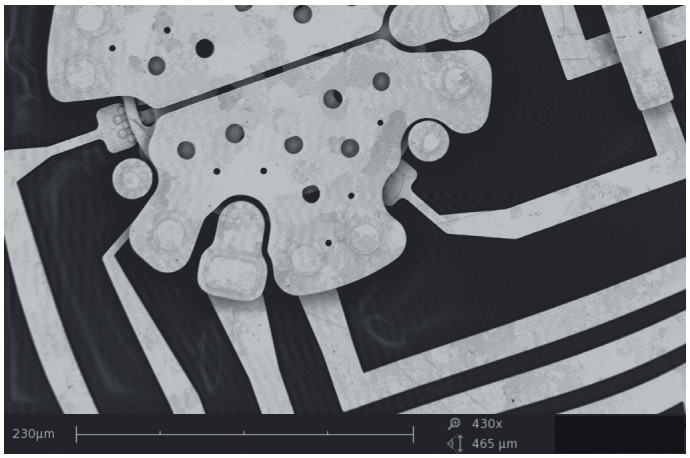
The Thermo Scientific™ Phenom Pure™ scanning electron microscope (SEM) is an ideal tool for the transition from light optical to electron microscopy. It is the most economical solution for high-resolution imaging, providing the best imaging results in its class.

Phenom Pure Desktop SEM

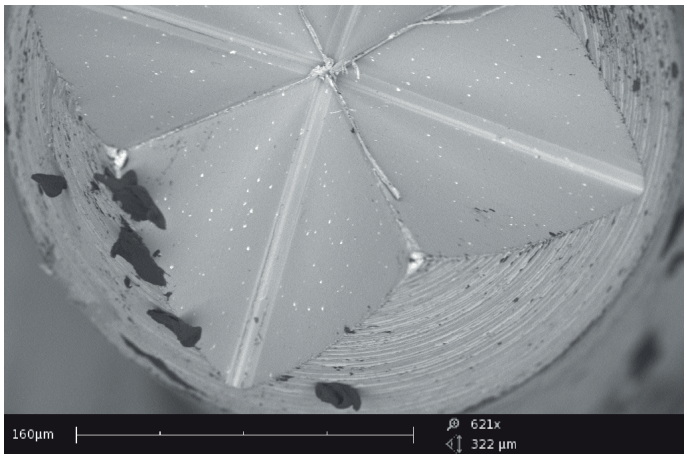
The Phenom Pure is equipped with the basic components to meet high resolution imaging needs. It provides high quality images while using basic features, and offers the market's fastest loading and imaging time. The very reliable autofocus and automated source alignments make it the most user friendly system on the market.

The Phenom Pure is the most economical and efficient solution for high resolution SEM imaging. The worry free maintenance and remote assistance are unique in its product category, and maximize system uptime. With more than 30 times the magnification of a conventional light microscope and large depth of focus, the Phenom Pure combines high resolution imaging with extreme ease of use.

Imaging Specifications	
Imaging modes	
Light optical	Magnification range: 20x
Electron optical	• Magnification range: 70 - 65.000x • Digital zoom max. 12x
Illumination	
Light optical	Bright field / dark field modes
Electron optical	Long lifetime thermionic source (CeB_6)
Acceleration voltages	5 kV and 10 kV
Resolution	< 25 nm
Digital image detection	
Light optical	Black & white navigation camera
Electron optical	High-sensitivity backscattered electron detector (compositional and topographical modes)
Image formats	
JPEG, TIFF, BMP	
Image resolution options	
456 x 456, 684 x 684, 1024 x 1024 and 2048 x 2048 pixels	
Data storage	
USB flash drive, 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



Semiconductor circuit



Needle

Never lost navigation and ease-of-use

The navigation camera in the Phenom Pure 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 to accommodate a large range of samples. Sample loading is fast and safe due to our patented sample vacuum loading technology.

The optical camera, motorized stage and intuitive user interface work together to help navigate swiftly to any region of interest. Upon clicking on the position of the optical image to investigate, the stage automatically centers the region of interest. Switching to electron imaging mode is fully automated and fast at the touch of just one button. A high resolution image is available within 30 seconds of loading the sample. Saving images is practical and easy on a USB memory stick or network storage location for offline analysis and distribution.

The user always knows the position on the sample with the unique Never Lost Navigation. Overviews of both the optical and electron optical images provide clear reference point at all times. The sample can easily be moved by touching the feature of interest on the screen; the motorised stage will instantly move to the desired position.

System Specifications

System

- Imaging module
- 19” monitor
- Rotary knob
- 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

Requirements

Ambient conditions	
Temperature	15°C ~ 30°C (59°F ~ 86°F)
Humidity	10% < RH < 80%
Power	Single phase AC 110 - 240 Volt, 50/60 Hz, 300 W (max.)

Recommended table size

120 x 75 cm, load rating of 100 kg

thermoscientific

Phenom Pure

Customize your SEM

The Phenom Pure can be equipped with two optional detector systems. The first one is a fully integrated Energy Dispersive Spectroscopy (EDS) system. EDS allows users to analyse the chemical composition of their samples. Detailed chemical composition can be obtained from a micro volume via a spot analysis.

The second is a Secondary Electron Detector (SED) for applications that require surface and topography sensitive imaging.

ProSuite Specifications

System

- Automated collection of images
- Real-time remote control
- Intuitive single page user interface
- Standard applications included: Automated Image Mapping & Remote User Interface

Optional

3D Roughness Reconstruction	• Based on “shape from shading” technology, no stage tilt required • Fast reconstruction
FiberMetric	• Fast and automated collection of all statistical data • Large range of fibers and pores can be measured
ParticleMetric	Morphology and practicle size data for submicron particle applications
PoroMetric	Fully automated visualization and analysis of pores

SED Specifications

Detector type

Everhart-Thornley

EDS Specifications

Detector types

	• Silicon Drift Detector (SDD) • Thermoelectrically cooled (LN_2 free)
Detector active area	25 mm^2
X-ray window	Ultra thin Silicon Nitride (Si_3N_4) window
Energy resolution	Mn Kα ≤ 132 eV
Processing capabilities	Multi-channel analyzer with 2048 channels at 10 eV/ch
Hardware integration	Fully embedded

Software

- Integrated in Phenom ProSuite
- Integrated column and stage control
- Auto-peak ID
- Iterative strip peak deconvolution
- Confidence of analysis indicator
- Export functions: CSV, JPG, TIFF, ELID, EMSA

Report

Docx format

Find out more at **thermofisher.com/phenomworld**

ThermoFisher SCIENTIFIC

Phenom-World B.V. Dillenburgstraat 9T, 5652 AM Eindhoven, The Netherlands.

DS0311-EN-09-2019