Phenom ProX G6 Desktop SEM

Desktop SEM with EDS capability for robust, effortless, and versatile elemental analysis
The sixth generation of Thermo Scientific Phenom ProX G6 Desktop SEM fills the gap between light microscopy and floor-model SEM analysis, expanding the capabilities of research facilities. It offers fast, high-resolution imaging in addition to an integrated energy dispersive spectroscopy (EDS) detector for robust, easy-to-use, rapid elemental analysis.

**Expand your research facility’s capabilities**
Fast and easy to use, the Thermo Scientific™ Phenom™ ProX G6 Desktop SEM can be used to relieve the burden of routine analysis for common samples from floor-model SEM instruments. Instrument configuration and the sample loading mechanism ensure quick imaging with minimal time spent tuning between experiments.

Facility users of any experience level can quickly begin producing high-quality results with the Phenom ProX G6 Desktop SEM. Its long-lifetime CeB₆ source offers high brightness while requiring low maintenance. Additionally, the Phenom ProX G6 Desktop SEM’s high stability and small form factor allow it to be used in practically any lab environment because it does not require specialized infrastructure or expert oversight.

**Key Benefits**
- **Expand research capabilities** — Offload work from your floor-model SEMs
- **Fully integrated EDS detector** — High-resolution imaging at same working distance as EDS analysis for faster workflow
- **Easy to learn, easy to use** — Users of any experience level can quickly start producing results
- **Fast, high-resolution imaging** — Long-lasting, high-brightness CeB₆ electron source
- **No specialized infrastructure** — High stability and small form factor allow it to be used in practically any lab environment

**Imaging specifications**

<table>
<thead>
<tr>
<th>Imaging modes</th>
<th>Magnification range: 20–134x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light optical</td>
<td>Magnification range: 160–350,000x</td>
</tr>
<tr>
<td>Electron optical</td>
<td>Long lifetime thermionic source (CeB₆)</td>
</tr>
</tbody>
</table>

**Illumination**

<table>
<thead>
<tr>
<th>Light optical</th>
<th>Bright field / dark field modes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electron optical</td>
<td>Long lifetime thermionic source (CeB₆)</td>
</tr>
</tbody>
</table>

**Acceleration voltages**

- Default: 5 kV, 10 kV and 15 kV
- Advanced mode: adjustable range between 4.8 kV and 20.5 kV imaging and analysis mode

**Resolution**

- ≤6 nm (SED)
- ≤8 nm (BSD)

**Detector**

| Standard | Energy dispersive spectroscopy detector
|----------|-----------------------------------------|
| Optional | Backscattered electron detector
| Optional | Secondary electron detector (enabled for live mixing with BSE)
The EID software package runs smart algorithms with advanced peak analysis to optimize the auto-identification functionality, while still allowing for manual adjustments at any time in the analysis process. The intuitive step-by-step process within the software helps you collect all X-ray results in an organized and structured manner.

### EDS Specifications

<table>
<thead>
<tr>
<th>Detector type</th>
<th>Silicon Drift Detector (SDD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detector active area</td>
<td>25 mm²</td>
</tr>
<tr>
<td>X-ray window</td>
<td>Ultra thin silicon nitride (Si₃N₄) window allowing detection of elements B to Cf</td>
</tr>
<tr>
<td>Energy resolution</td>
<td>Mn Kα ≤132 eV</td>
</tr>
<tr>
<td>Processing capabilities</td>
<td>Multi-channel analyzer with 2048 channels at 10 eV/ch</td>
</tr>
<tr>
<td>Max. input count rate</td>
<td>300,000 cps</td>
</tr>
<tr>
<td>Hardware integration</td>
<td>Fully embedded</td>
</tr>
</tbody>
</table>

### Software

- Integrated in Phenom user interface
- Integrated column and stage control
- Auto-peak ID
- Iterative strip peak deconvolution
- Export functions: CSV, JPG, TIFF, ELID, EMSA

### Report

Docx format

### System specifications

<table>
<thead>
<tr>
<th>Dimensions and weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imaging module</td>
</tr>
<tr>
<td>Diaphragm vacuum pump</td>
</tr>
<tr>
<td>Power supply</td>
</tr>
<tr>
<td>Monitor (24&quot;)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Workstation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powerful workstation, including SSD storage and four USB slots</td>
</tr>
<tr>
<td>92.5 (w) x 305.6 (d) x 343.5 (h) mm, 8 kg</td>
</tr>
</tbody>
</table>

### Requirements

<table>
<thead>
<tr>
<th>Ambient conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
</tr>
<tr>
<td>Humidity</td>
</tr>
<tr>
<td>Power</td>
</tr>
</tbody>
</table>

### Recommended table dimensions

150x75 cm, load rating of 100 kg
Secondary electron detector
The standard detector in the Phenom ProX G6 Desktop SEM is a four-segment backscattered electron detector (BSD) that yields sharp images and provides topographical contrast information.

A secondary electron detector (SED) is optionally available. The SED collects low-energy electrons from the top surface layer of the sample. It is therefore the perfect choice to reveal detailed sample surface information. The SED can be of great use for applications where topography and morphology are important. This is often the case when studying microstructures, nanostructures or particles. Once installed, the Phenom ProX G6 offers live mixing of backscattered and secondary electrons images to combine compositional and topographic data.

Long-life CeB₆ source
The CeB₆ (cerium-hexaboride) source has several advantages: first, the high brightness it provides compared to tungsten makes it much easier to obtain high-quality images with many details; second, the lifetime of the source is very long, and maintenance can be scheduled, enabling you to obtain the results you are looking for, even after a long (automated) run. The lifetime is extended as much as possible via our intelligent software; the source is hibernated when the Phenom ProX G6 Desktop SEM is not in use. In case the source needs to be replaced, this can be done on-site.

Element Mapping and Line Scan specifications*

<table>
<thead>
<tr>
<th>Element Mapping</th>
<th>Line Scan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full spectrum mapping and line scan, makes post processing possible including offline element selection and re-quantification</td>
<td>Line Scan resolution range 16–512 pixels</td>
</tr>
<tr>
<td>Element selection User-specified individual element maps, plus BSD and mix image</td>
<td>Points dwell time range 10–500 ms</td>
</tr>
<tr>
<td>Selected area Any size, rectangular</td>
<td>Element selection Auto ID or manual</td>
</tr>
<tr>
<td>Mapping resolution range 32x32-960x960 pixels</td>
<td>Reporting</td>
</tr>
<tr>
<td>Pixel dwell time range 1–500 ms</td>
<td>Docx format</td>
</tr>
</tbody>
</table>

SED specifications
Detector type Everhart Thornley

* Optional