

# Sample Holder Inserts

**Insertable sample holders for fast and easy sample preparation.**

The Metallurgical Sample Holders and Metallurgical Charge Reduction Sample Holders can be extended with the Micro-electronics and X-view inserts. These inserts are designed to enable fast sample preparation for specific groups of samples that be examined on the Phenom™. They also speed up sample throughput times.

## Micro-Electronics Insert

Imaging micro-electronics, solar cells and other wafer-based samples requires non-destructive sample preparation methods that allow the sample to be reused after imaging.

Typically, samples are glued onto an aluminum holder. Removing the sample after imaging may cause damage, and contaminate or even break the sample. The micro-electronics insert is designed to overcome this problem. Its unique clamping mechanism makes glue or other adhesives obsolete.



**Micro-electronics insert.**

## X-View Insert

Image coatings, multi-layer semiconductors and fractured surfaces require X-sectional preparation. Typically, these samples are prepared as a resin mount, a time-consuming and labor-intensive process.

The X-view insert eliminates the need for screws and tools to clamp the sample.

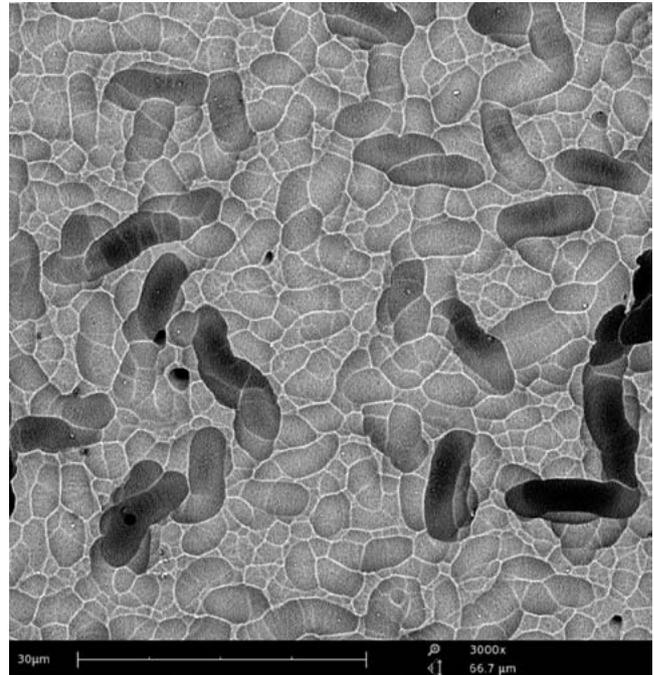


**X-view insert.**

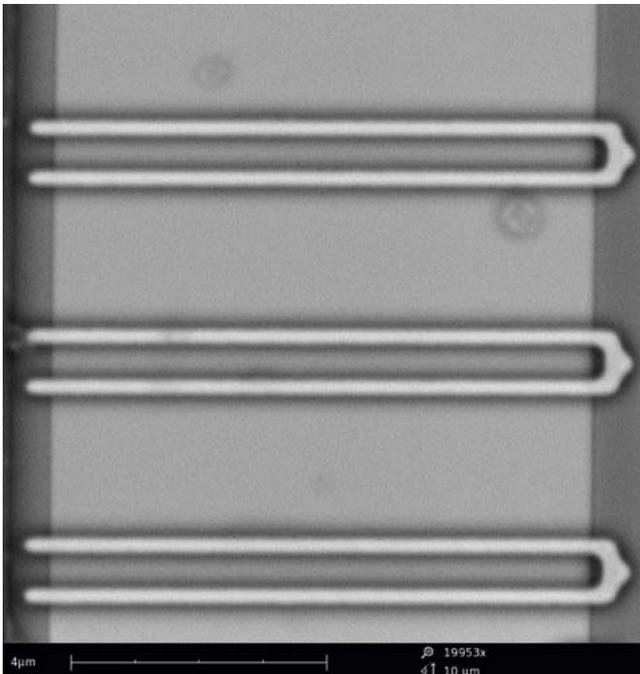
## Micro-Electronics Insert

The micro-electronics insert is used in combination with the metallurgical sample holder. No tools are needed to load the sample onto the insert.

Other commercially available mechanisms use clamps that require surface contact with the sample. This often results in surface damage and obscures part of the sample. The micro-electronics insert does not use surface contact to hold the sample: angled clamping fingers ensure the sample is held down firmly, and the clamping force is evenly spread by the 16 fingers.



Quality inspection image of front-side texture of solar cell. The distribution and homogeneity of the mono- or multi-crystalline structure are important. Over-etching is also unwanted.



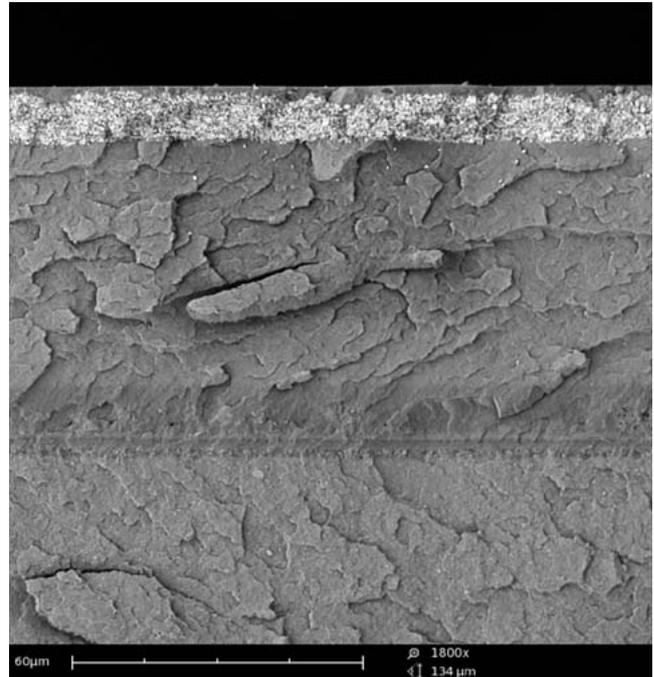
Semiconductor sample imaged using micro-electronic insert. Some features shown on the surface of this semiconductor are smaller than 100 nm. Due to the non-destructive (delicate) way the sample is handled, it can be used again for further development.



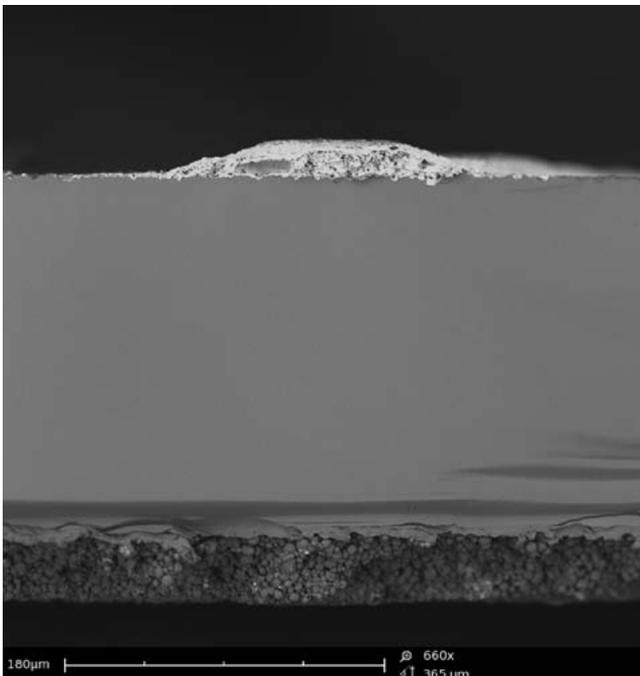
Micro-electronic device. Imaging can provide quality control of wire surfaces and connections.

## X-View Insert

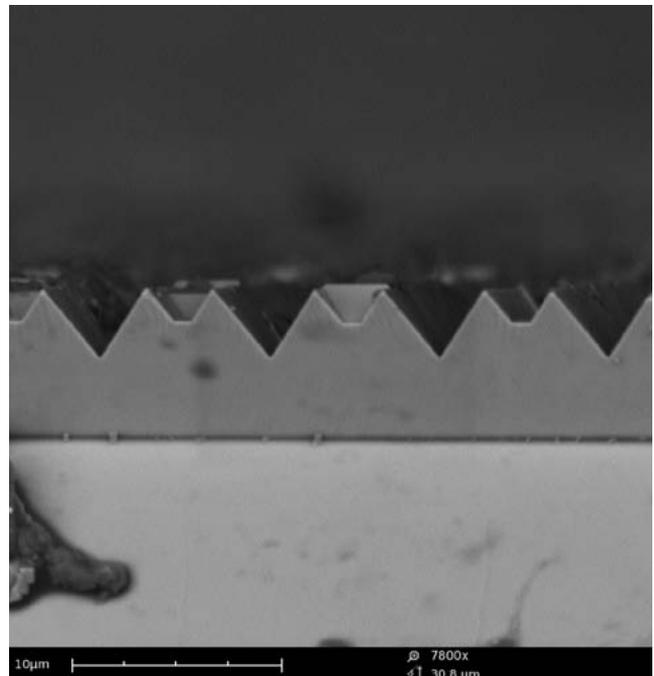
The X-view insert is used in combination with the metallurgical sample holder. Sample preparation for cross-sectional imaging can be a time-consuming process. Samples are often embedded in resin and polished. With the X-view insert, the sample is easily secured in the holder using a split clamping mechanism. The sample position can be adjusted quickly and easily without the need for tools. Imaging the sample using the X-view insert preserves the natural state of the sample, allowing reuse in the production process or in further laboratory investigations.



**Cross-sectional image of credit card showing different layers. The main material of the card consists of 3 layers, making it flexible without breaking. The top, conductive magnetic layer normally holds the card information.**



**Cross-sectional image of solar cell showing top conductive track. These images are important in quality control for monitoring the exact dimensions and bonding of the track.**



**Cross-sectional image of micro device.**

#### Micro-Electronics Insert

- Samples size:
  - Between 10 mm x 10 mm and 19 mm x 19 mm (w x l)
  - Maximum 1.5 mm thickness
- No tools required
- No surface contact
- Easy sample recovery after use
- Preserves original sample state



Sample preparation with micro-electronics insert.

#### X-view Insert

- Samples size:
  - 15 mm x 25 mm (w x l)
  - Maximum 10 mm thickness
- No tools required
- Easy sample positioning
- Preserves original sample state



Sample preparation with X-view insert.

These inserts can be used in combination with the metallurgical sample holder (PW-610-001) and the metallurgical charge reduction sample holder (PW-610-002).