

# QUANTAX ED-XS

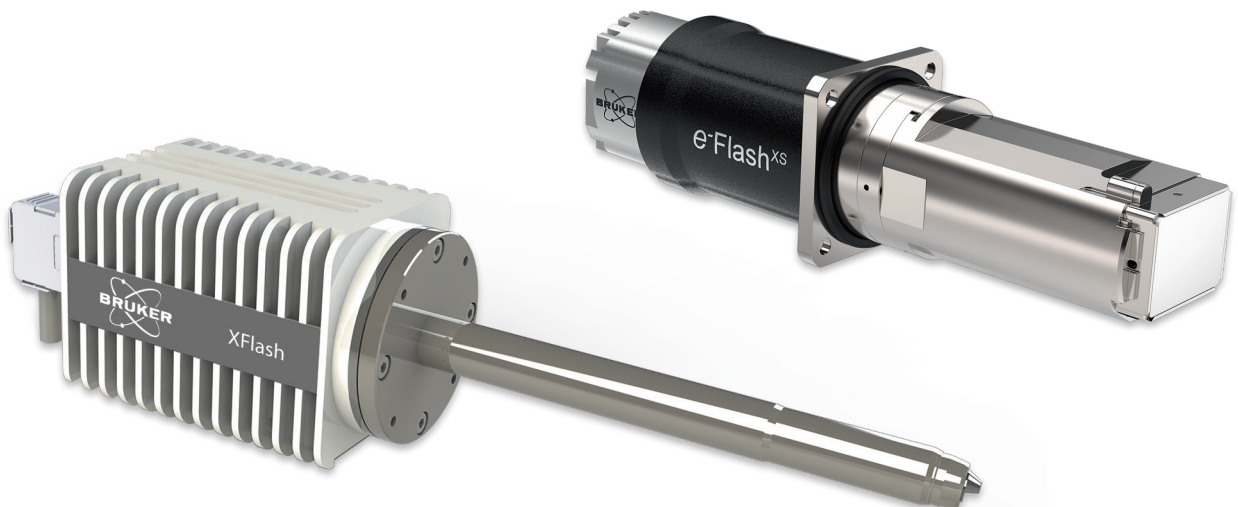
Simplicity delivers affordable science

Innovation with Integrity

EDS & EBSD

# Integrated EDS & EBSD

QUANTAX ED-XS is a new integrated EDS & EBSD system designed for the goal of accelerating the pace of progress in science and technology by enabling the large community of entry-level SEM users in academic research and industry to benefit from the power of EDS and EBSD techniques. To achieve this goal, Bruker has developed e-Flash XS, the most reliable and most affordable EBSD detector ever commercialized.



## Key benefits of QUANTAX ED-XS

### Affordable

- Low initial investment cost
- Low cost of ownership: high reliability hardware and Field Replaceable Units (FRU) for very low downtime in unlikely case of detector failure
- Attractive service contract options

### Powerful

- Full-featured ESPRIT software suite with future expansion capabilities ensuring full analytical power
- Easy-to-use integrated EDS & EBSD
- Binning capable CMOS EBSD camera combines the best of CMOS and CCD

### Dependable

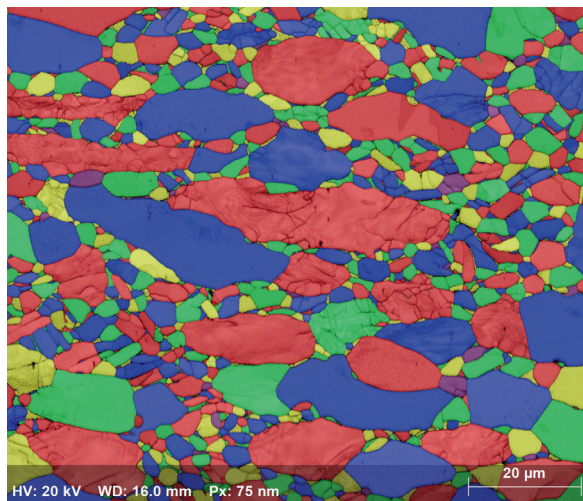
- Optimized use of lab resources:
  - Run routine analyses to relieve backlog on expensive FE-SEMs
  - New users can be trained and practice EDS & EBSD with less time constraints
  - Check sample preparation quality before an EBSD session on a FE-SEM
- Safer operation
- Quick and reliable support by local Bruker specialists

## Reliable and easy-to-use EDS & EBSD

QUANTAX ED-XS provides the full functionality for qualitative and quantitative EDS and EBSD analysis integrated under the ESPRIT software suite. A 30 mm<sup>2</sup> XFlash<sup>®</sup> Silicon Drift Detector (LN<sub>2</sub>-free cooling) provides an excellent balance between high throughput rates and light element detection capabilities. The highly capable XFlash<sup>®</sup> detector is complemented by the newly developed and world's most reliable and easy-to-use EBSD detector e-Flash XS.

Designed for maximum reliability and EBSD pattern quality, the e-Flash XS is powered by a state-of-the-art CMOS camera with 720 x 540 pixels native resolution and the capability to use it in binning modes from 2x2 up to 6x6 pixels. Coupled with an innovative optical system for maximum light transmission and a high performance, user-replaceable phosphor screen, the camera can acquire patterns at a speed of up to 520 frames/second even at moderate electron probe currents. Its USB 3.0 interface for power supply and data transfer makes e-Flash XS a truly plug-and-play instrument.

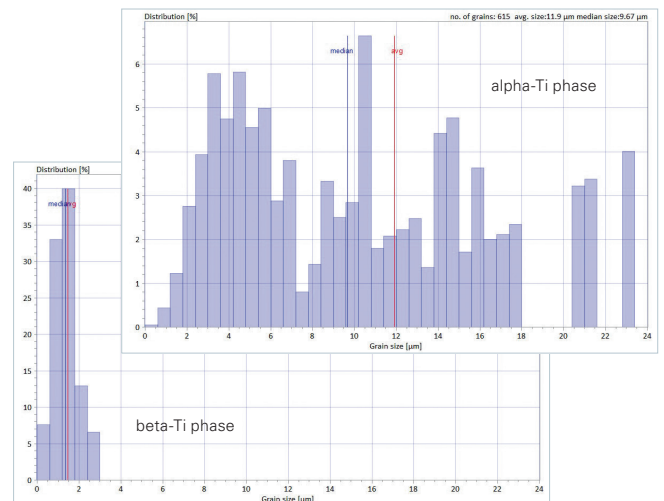
Bruker's high-performance ESPRIT software completes the package to create a powerful, yet easy-to-use analytical tool. Data is acquired, processed, and evaluated using the same software, thus enabling many useful interactive features.



## Ease of use is not just a buzz word

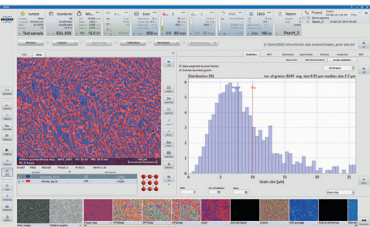
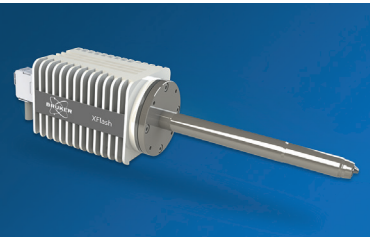
These features make QUANTAX ED-XS the perfect analytical tool for entry level users:

- **No calibration required** – ESPRIT software is automatically correcting the pattern center coordinates for any changes in WD between various samples.
- **Automatic camera gain optimization** – quick and reliable feature for acquiring patterns with optimum signal to noise ratio.
- **Automatic crystal phase setup** – no user-intervention required for setting the number of reflectors needed to achieve best pattern indexing quality.
- **Automatic data saving and EHT shutdown** – EDS HyperMaps and EBSD maps can be automatically saved at the end of a map acquisition task following user defined preferences. The EHT can also be shut off automatically to save filament lifetime.
- **No risks of accidental EBSD detector insertion** into the SEM stage. e-Flash XS is using a unique functioning principle which allows the easy removal of the detector head to free-up the SEM chamber for non-EBSD related applications.
- **User-replaceable phosphor screen.**



Reconstructed grains map in alpha-beta Ti alloy (left) and corresponding grain size distribution and other grain statistics for the alpha-Ti phase (top-right) and the beta-Ti phase (bottom-right).

# Technical Specifications



Component	Key features and specifications
<b>EBSD Detector</b>	<ul style="list-style-type: none"> <li>• CMOS imaging chip technology</li> <li>• Native image resolution: 720 x 540 pixels</li> <li>• Supported binning modes: 2x2, 3x3, 4x4, 5x5, 6x6</li> <li>• Speed: up to 520 frames/second (fps) in all binning modes</li> <li>• Custom made optics system with field lens for maximized light efficiency</li> <li>• User-removable detector head with slide in &amp; out mechanism</li> <li>• User-replaceable phosphor screen</li> <li>• True plug and play (PnP) device - data and power transfer via USB3.0 cable</li> <li>• Outer dimensions: length ~ 84 mm (3.3 in), diameter ~ 48 mm (1.9 in)</li> <li>• Weight: 850 g</li> </ul>
<b>EDS Detector</b>	<ul style="list-style-type: none"> <li>• Energy resolution &lt; 129 eV at MnK<math>\alpha</math></li> <li>• Excellent light element and low energy performance, element range B – Am</li> <li>• 30 mm<sup>2</sup> active area</li> <li>• Extremely high pulse load capability</li> <li>• Vibration-free, Peltier cooled</li> <li>• Immediately available once powered ON</li> </ul>
<b>ESPRIT Software</b>	<ul style="list-style-type: none"> <li>• Data acquisition and processing done using the same interface</li> <li>• Multithreaded technology for ultrafast reindexing of EBSD data at up to 60,000 points/sec and EDS spectra quantification at up to 2,000 spectra/sec</li> <li>• Multiple automated or semi-automated features for signal optimization and pattern indexing</li> <li>• Automatic element identification and standardless quantification</li> <li>• Various pre-defined spectra evaluation methods for typical analysis cases</li> <li>• Multi-point EDS analysis, ultra-fast EDS line scan and X-ray mapping</li> <li>• HyperMap: acquisition &amp; processing of full EDS spectrum for each map pixel</li> <li>• Phase editor for easy creation and/or editing of phase entries used for pattern indexing</li> <li>• Misorientation distribution features</li> <li>• Automatic grain reconstruction and statistics calculation (size, shape &amp; main axis inclination)</li> <li>• Grain boundary analysis including CSL</li> <li>• Multitude of subset creation and processing options</li> <li>• Orientation distribution (crystallographic texture) representation features</li> <li>• Bruker Phase Database and American Mineralogist Phase Database included</li> <li>• Report generation and export</li> <li>• Export of maps and histograms in text and standard image formats, e.g., JPEG, PNG, Bitmap, TIFF</li> </ul>

## Bruker Nano Analytics

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