



NANOS EBSD

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High-resolution tabletop SEM with integrated EBSD capability.

From image to crystallographic insight

Combine high-resolution SEM imaging with EBSD analysis in a compact, easy-to-use tabletop platform. By analyzing diffraction patterns, it can accurately measure microstructural information such as crystal orientation, phase, and grain structure, while also enabling integrated elemental and crystallographic analysis in combination with EDS.

Key features

Eucentric tilt up to 70 degrees

Keep your region of interest centered and in focus while tilting

Crystallographic Analysis in Tabletop SEM

Access crystal orientation and structure information directly on a tabletop SEM

Fast & Reliable Orientation Mapping

Rapidly map crystal orientations across the sample

Phase identification capability

Identify and distinguish different crystalline phases

Compact & Integrated Design

Fully integrated EBSD functionality in a compact setup

Combined EDS & EBSD platform

Easily switch between EDS and EBSD analysis in the same system

**Eucentric tilt: the key to seamless EBSD**

The combination of eucentric tilt and EBSD creates a seamless workflow between imaging and crystallographic analysis. You can image the sample at both 0° and the 70° EBSD position simply by tilting the stage, without breaking vacuum or repositioning the sample. Thanks to the eucentric tilt, the field of view, working distance and focus are maintained during tilting, so an area identified during imaging can be brought directly into the EBSD position without losing the region of interest. This makes switching between imaging and EBSD fast, intuitive and highly reproducible.

Electron Backscatter Diffraction (EBSD)

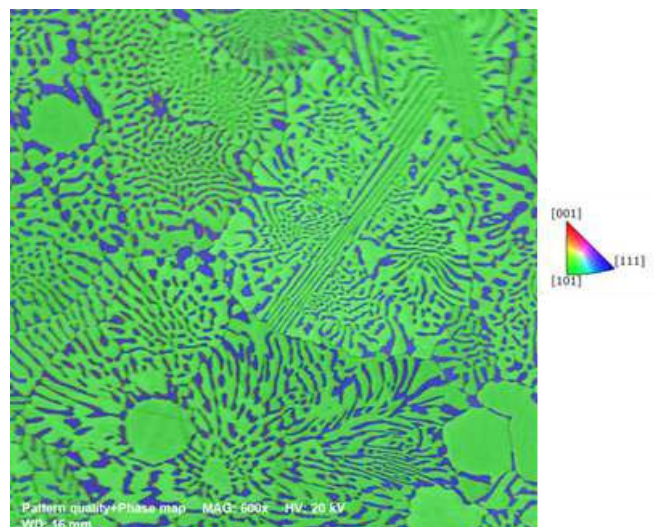
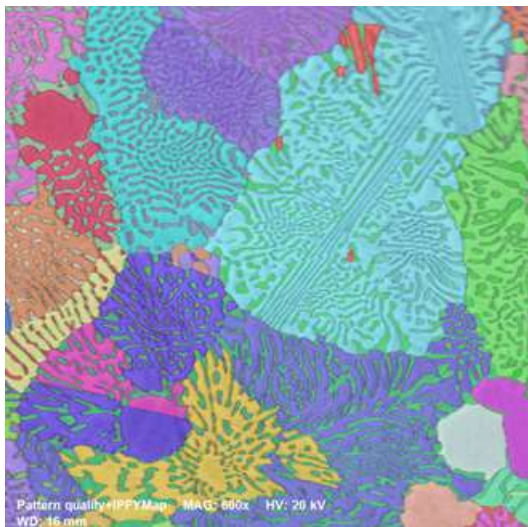
Bruker e-Flash XS specifications

Detector technology	CMOS imaging chip technology
Native image resolution	720 × 540 pixels
Binning modes	2×2, 3×3, 4×4, 5×5, 6×6
Speed	Up to 520 frames/second (fps) in all binning modes
Optics	Custom-made optics system with field lens for maximizing light efficiency
Phosphor screen	User-replaceable phosphor screen
Connection	True plug-and-play (PnP) device – data and power transfer via USB 3.0 cable
Dimensions	Length ~84 mm (3.31 in), diameter ~48 mm (1.89 in)
Weight	0.85 kg
Scan generator	QUANTAX Scan system (external scan generator)



Bruker ESPRIT software

Interface	EBSD data acquisition and processing using the ESPRIT software interface
Processing speed	Multithreaded technology for ultrafast reindexing of EBSD data at up to 60,000 points/s
Signal optimization & indexing	Multiple automated or semi-automated features for signal optimization and pattern indexing
Phase editor	Easy creation and/or editing of phase entries used for pattern indexing
Misorientation analysis	Misorientation distribution features
Grain reconstruction	Automatic grain reconstruction and statistics calculation, including size, shape and main-axis inclination
Grain boundary analysis	Grain boundary analysis including CSL
Data processing	Multiple subset creation and processing options
Texture analysis	Orientation distribution / crystallographic texture representation features
Phase databases	Bruker Phase Database and American Mineralogist Phase Database included
Reporting	Report generation and export
Data export	Export of maps and histograms in text and standard image formats, e.g. JPEG, PNG, Bitmap and TIFF



Specifications

IMAGING MODE

Optical

2 & 12x optical with up to 60x digital zoom

SEM

Magnification range: 100 - 200.000x

Resolution

< 8 nm

Capture resolution

Up to 4096 x 4096 pixels (4K)

ILLUMINATION

Light optical

Bright field

Electron optical

Optimized thermionic source (tungsten)

Lifetime: 1000+ operating hours in ECO-mode

Acceleration voltages

Default: 1, 2, 5, 7, 10, 15 & 20 kV

DETECTOR

Secondary electron detector (SED)

Backscattered electron detector (BSD) – 4 quadrant

Energy Dispersive Spectroscopy detector (EDS) – embedded

Electron Backscatter Diffraction (EBSD) - Non-retractable

Color

LIGHT OPTICAL NAVIGATION CAMERA

IMAGE FORMATS

JPEG, TIFF, PNG, BMP

USER INTERFACE

Communication, imaging and analysis use a single monitor with control via a wireless mouse & keyboard.

Remote control and diagnostic enabled.

Network, USB, workstation

SAMPLE STAGE

Eucentric tilt stage (0° up to -70°) manual

Computer-controlled motorized X, Y: 12.5 x 12.5 mm

SAMPLE SIZE

Up to 12.5 mm diameter

Up to 17.5 mm height

EDS SPECIFICATIONS

Detector type

Silicon Drift Detector (SDD), thermo-electrically cooled

Detector active area

30 mm²

Energy resolution

@ Mn K α < 132 eV

Max. input count rate

300,000 cps

Hardware integration

Fully embedded SDD, pulse processor and scan generator.

SOFTWARE

Installed on Windows PC and controlled via user interface.

EDS point analysis, line analysis and mapping.

Export functions.

EBSD

EBSD analysis with Bruker ESPRIT software

Beam control with external scan generator capability

SYSTEMS SPECIFICATIONS

Footprint

280 (w) x 470 (d) x 550 (h) mm

Weight

62kg

Pumps

Pfeiffer Turbo molecular pump and an oil free membrane pre-vacuum pump.

High vacuum SEM mode (standard).

Low vacuum mode (standard): vacuum of 40 Pascal for reduced charging.

Motor controlled vacuum levels via the user interface.

Pre-configured All-in-One PC with a 27" monitor.

SEM imaging and EDS Analysis software installed.

AMBIENT CONDITIONS

Temperature

15°C – 25°C (59°F - 77°F)

Humidity

20 - 80% RH

Power

System in typically power imaging mode: 110 W (max. 140 W)

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