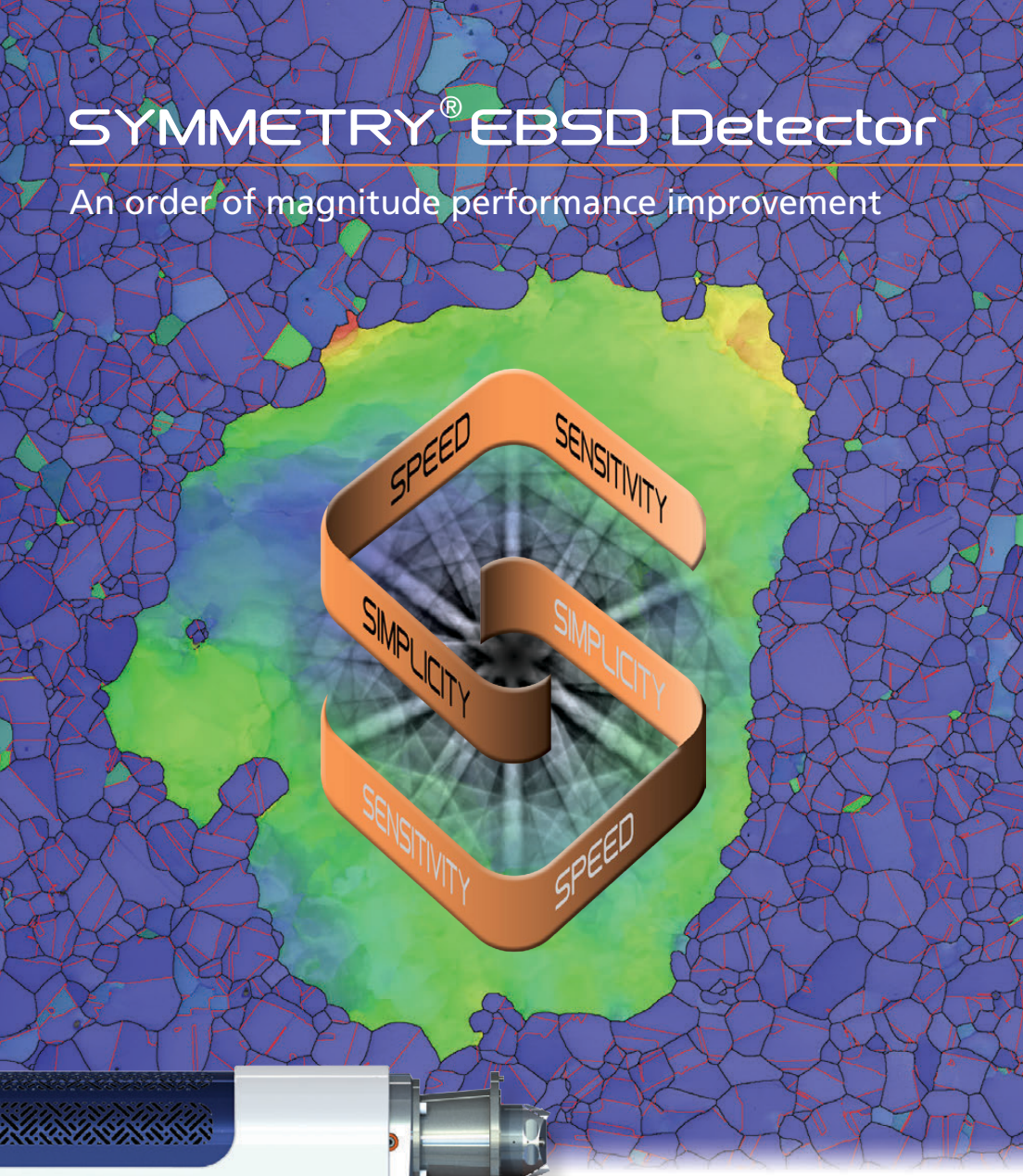
SYMMETRY® EBSD Detector

An order of magnitude performance improvement



CMOS speed, ***CMOS*** sensitivity, no compromise

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SYMMETRY

A technology breakthrough

Symmetry, the world's first EBSD detector based on CMOS sensor technology, is set to revolutionise EBSD analysis.

Operating at over 3,000 indexed patterns per second (pps), Symmetry balances unprecedented speed with exceptional sensitivity to enable work even at low beam currents and voltages.

All of this is delivered within a design that provides perfect operational simplicity. Now you can use a single detector for all applications - with no compromise.

Cover and background:
Ni superalloy, data acquired at 3000 patterns per second.

CMOS speed, ***CMOS*** sensitivity, no compromise

Operating at over 3000 patterns per second, Symmetry is the world's fastest EBSD detector. This step-change in performance delivers not only for routine applications, but also for large area mapping, 3D EBSD and *in situ* experiments.

With unparalleled sensitivity and dynamic range, Symmetry is ideal for even the most challenging applications, where low beam currents coupled with fast, high-resolution patterns are a necessity. Now there's no compromise between speed and sensitivity.

One detector fits all applications: features such as variable tilt, dynamic calibration, automated set-ups and seamless EDS integration ensure that everyone will get the right results every time.

Symmetry is a game-changer. Its unprecedented all-round performance will open up exciting new developments in even the most exacting of applications.

SYMMETRY

CMOS Speed and Sensitivity

Breakthrough technology

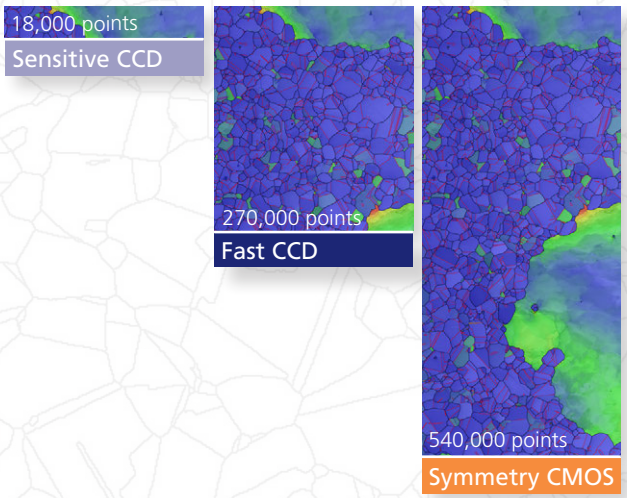
CMOS-based cameras can be both fast and sensitive and are already making a significant impact in other technology fields.

Symmetry incorporates a customised CMOS image sensor, optimised for EBSD.

It enables a level of performance never achieved by any previous EBSD detector.

Whether the focus is on speed or sensitivity, there is no need for compromise.

...up to 30x more data collected in the same time.



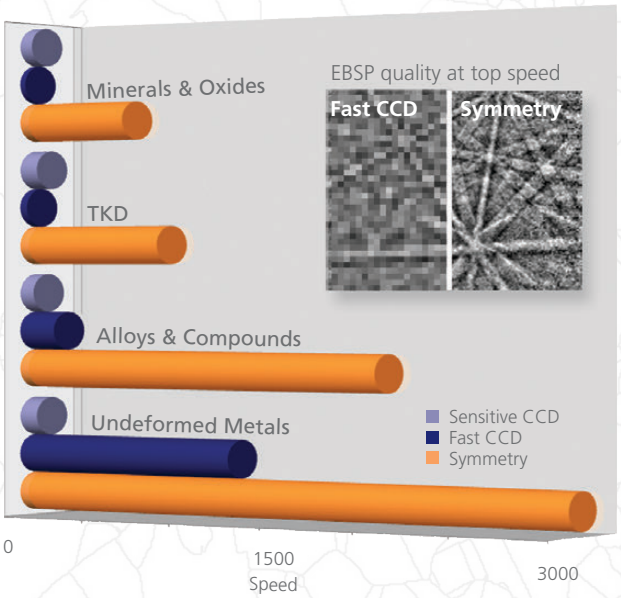
The 'one choice - no compromise' detector

The unrivalled combination of speed and sensitivity of Symmetry ensures the best performance across a complete range of samples.

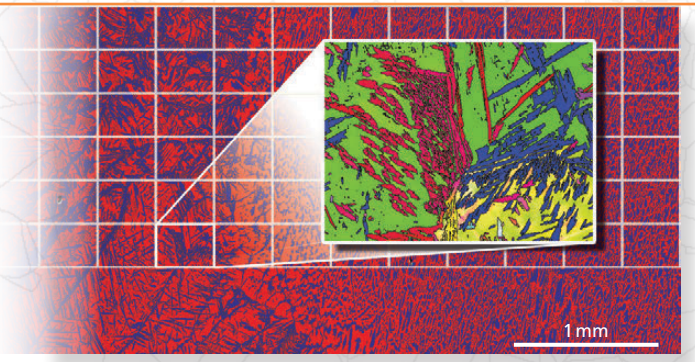
High acquisition speeds can be achieved without any loss of data quality.

Symmetry's high sensitivity means that, even on more challenging samples such as complex oxides or thin films, an order of magnitude increase in acquisition speed may be achieved with the best possible data quality.

...the best performance on *all* types of sample



Making the possible practical



Large area phase map of a weld margin in a duplex stainless steel, with zoomed IPF map showing the actual resolution. Sample was ~5 mm x 3 mm and 50,000,000 points were collected at 2000 pps.

Large Area Mapping

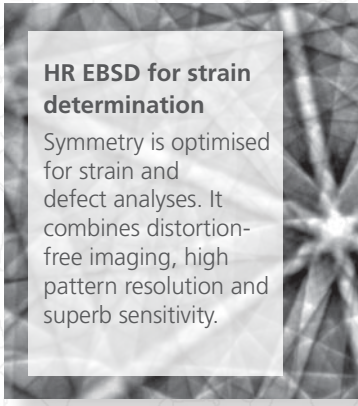
Required for accurate grain size determination or texture measurements where there is a need to cover a valid number of grains. Now, large areas with many hundreds of fields can be covered up to 10x faster.

3D EBSD

The unparalleled 3000 pps acquisition speed makes Symmetry the ideal detector for data-intensive 3D EBSD analyses on FIB-SEMs, typically saving many hours in a single 3D experiment.

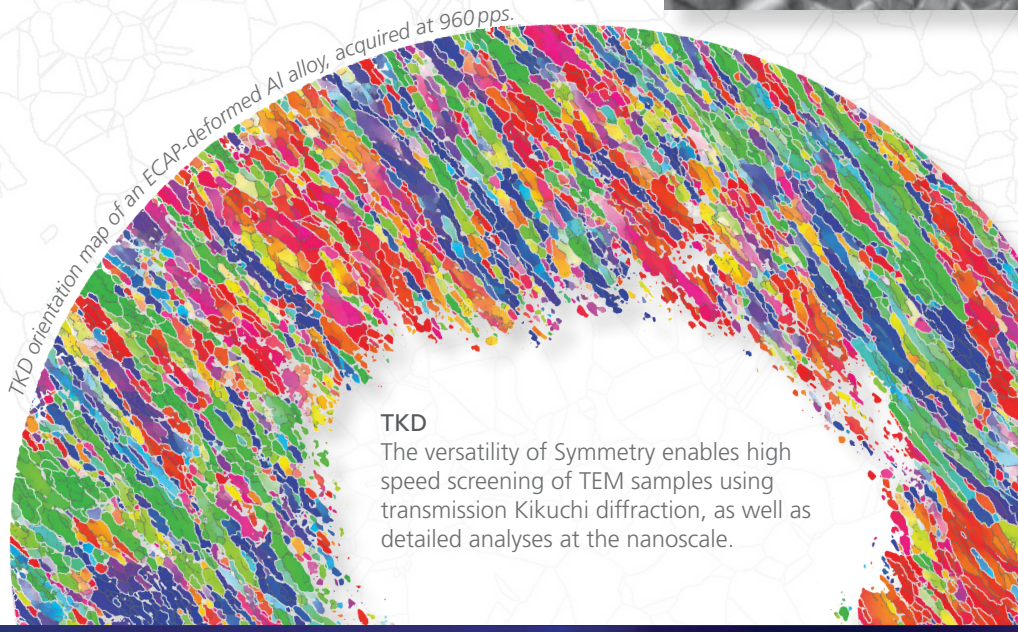
In situ analysis

During dynamic heating and tensile experiments transformations can occur in seconds. Only Symmetry captures these changes in real-time.



HR EBSD for strain determination

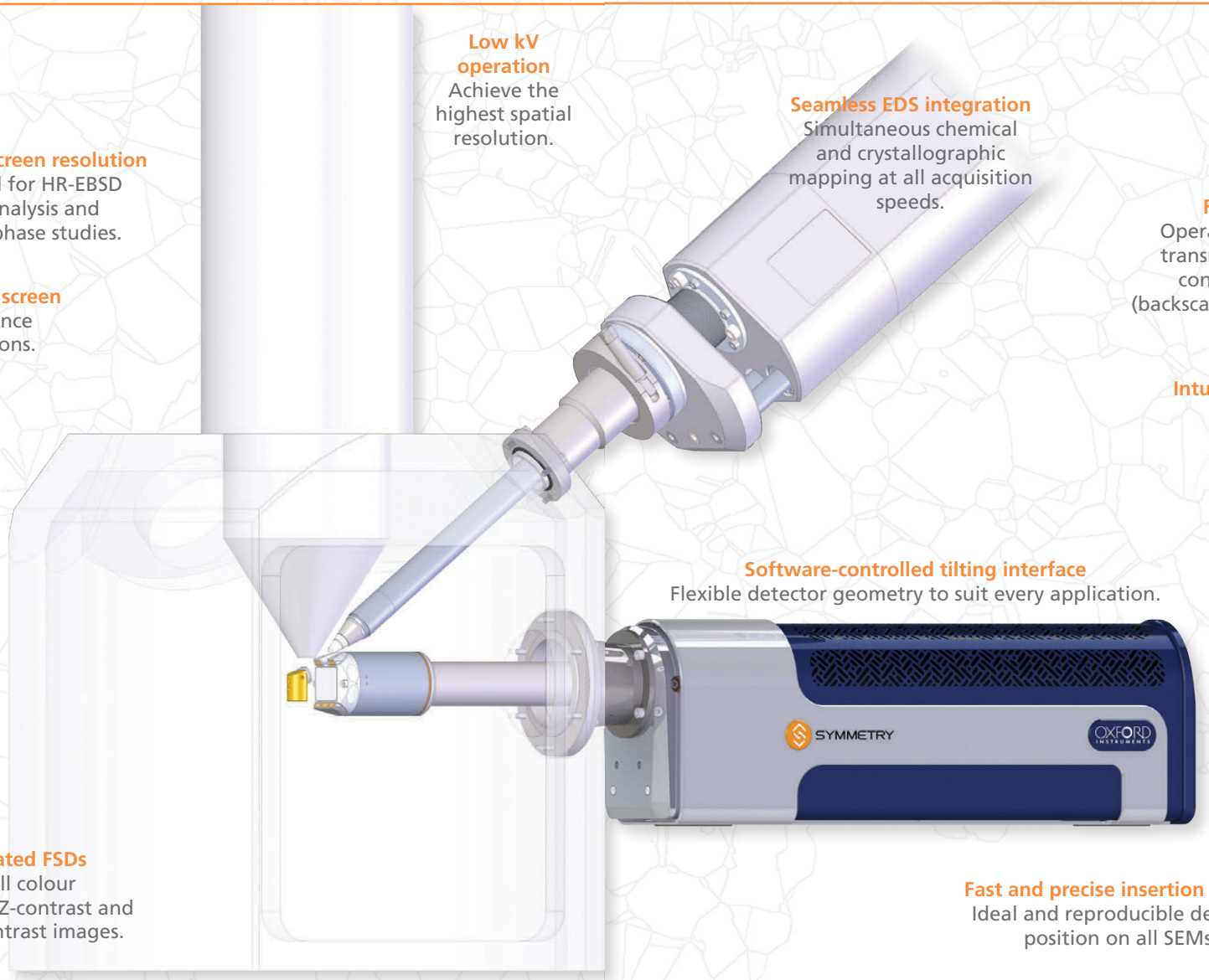
Symmetry is optimised for strain and defect analyses. It combines distortion-free imaging, high pattern resolution and superb sensitivity.



TKD

The versatility of Symmetry enables high speed screening of TEM samples using transmission Kikuchi diffraction, as well as detailed analyses at the nanoscale.

Operational simplicity



Low kV operation
Achieve the highest spatial resolution.

Seamless EDS integration
Simultaneous chemical and crystallographic mapping at all acquisition speeds.

Megapixel screen resolution
Optimised for HR-EBSD strain analysis and accurate phase studies.

Flexible
Operates in both transmission and conventional (backscattered) modes.

Optimised phosphor screen
For best performance across all applications.

Intuitive camera configuration
For reliable and robust acquisition conditions and best results.

156 x 128 pixel resolution at top speed
Perfect indexing and exceptional angular resolution at speeds over 3000 pps.

Software-controlled tilting interface
Flexible detector geometry to suit every application.

Autocalibration
Flawless indexing at any detector tilt or insertion position.

IR filter
Suitable for high temperature *in situ* experiments.

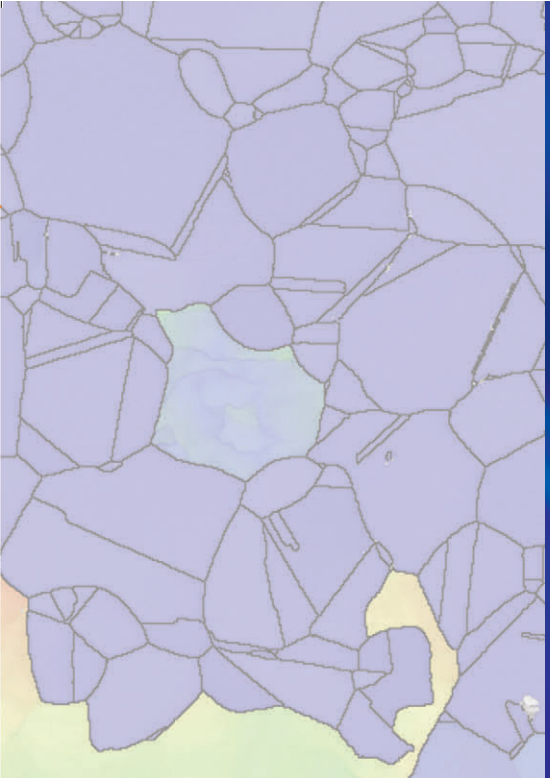
Bellows SEM interface
Maintains the microscope's vacuum integrity for the lifetime of the detector.

Five integrated FSDs
Provide full colour complementary Z-contrast and channelling contrast images.

Fast and precise insertion control
Ideal and reproducible detector position on all SEMs.

Contactless collision detection
Proximity-based alarm senses potential collisions before they happen.

Advanced high efficiency optics
High quality patterns at low doses for maximum spatial resolution.



This brochure provides a glimpse into the revolutionary capabilities of the Symmetry EBSD detector. Significantly more detail, including in-depth application notes, videos and technical overviews, can be found on our website at:

www.oxinst.com/symmetry

CE

OiService®

We are renowned for delivering outstanding support. Our global service hubs offer a full range of technical support to keep your detector, system and staff at maximum efficiency.

Keep your investment at peak performance. Multi-layered maintenance contracts suit your operational needs and budget.

Optimising you. Optimising your team. Omni-channel training enables everyone to deliver the right results every time.

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