

- Fastest acquisition for efficient EBSD data collection
- CMOS imaging sensor for high sensitivity and low noise performance
- Accurate and precise data, even at high speeds, powered by EDAX triplet indexing and Confidence Index technology
- Optimized EDS-EBSD collection for highest EDS throughput at fastest EBSD speeds for a complete analysis of multi-phase materials
- Compatible with patented NPAR™ for improved data quality with challenging samples

Velocity EBSD Camera Series

Product Bulletin – EBSD

The Velocity™ EBSD Camera Series offers high-speed EBSD mapping with the best indexing performance on real-world materials. Powered by a CMOS sensor, the Velocity combines fast acquisition with high sensitivity and low noise performance for optimal collection and data quality.

The Velocity Camera Series is available in three different models:

Velocity Pro – Up to 2,000 indexed points per second

Velocity Plus – Up to 3,000 indexed points per second

Velocity Super – Up to 4,500 indexed points per second

For all three models, these speeds can be achieved while providing indexing success rates up to 99% or better. At these speeds, the Velocity Cameras utilize 120 x 120 pixel images for improved band detection. This image resolution, combined with EDAX's proven triplet indexing routine, provides orientation precision values of less than 0.1°, without needing any specialized processing routines for accurate characterization of deformed microstructures.

The performance of the Velocity camera extends to a wide range of materials, including lower symmetry, multi-phase and deformed structures. The Velocity Series enables efficient data collection on these real-world samples with the quality results needed for optimal materials analysis.

The Velocity EBSD Cameras can integrate with compatible EDAX EDS detectors for efficient simultaneous EDS-EBSD collection, even at the highest collection speeds. When combined with ChI-Scan™ analysis, this results in useful integrated data for accurate phase differentiation.

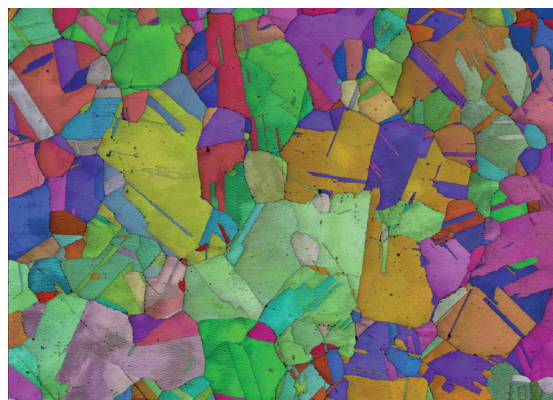


Figure 1. EBSD orientation map from Inconel 600 was collected at 3,000 indexed points per second at 11 nA beam current with >99% indexing success.

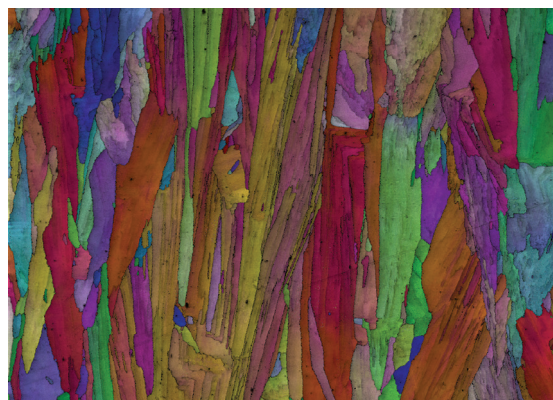


Figure 2. EBSD orientation map from additively manufactured Inconel 718 was collected at 4,500 indexed points per second at 25 nA beam current.

Specifications

- Data collection rates:
Velocity Pro up to 2,000 indexed points per second
Velocity Plus up to 3,000 indexed points per second
Velocity Super up to 4,500 indexed points per second
- Low noise CMOS sensor
- Orientation precision less than 0.1° without special correction routines
- 640 x 480 pixel image size (H x W)
- 120 x 120 image resolution at maximum indexing speeds
- 12-bit imaging
- Phosphor screen optimized for high speed/high sensitivity collection
- Custom lens for optimal performance
- Operation down to 5 kV acceleration voltage
- Compatible with NPAR and OIM Analysis™
- Compatible with HR-EBSD
- Motorized slide with metal bellows vacuum protection
- PRIAS™ and Forward Scatter Detector included

Features and Benefits

Data collection rates up to 4,500 indexed points per second

- Collect EBSD maps in minutes for efficient SEM use, *in-situ* experiments, and 3D EBSD applications

High-speed, low-noise CMOS sensor

- Provides high sensitivity, low noise, and 120 x 120 pixel images for EBSD indexing at the highest speeds

Orientation precision of less than 0.1°

- Clear characterization of deformed microstructures with standard indexing routines

Highest indexing success rates

- EDAX's proven triplet indexing and patented Confidence Index provide unparalleled indexing performance on challenging real-world samples

High-speed simultaneous EDS-EBSD collection

- The Velocity EBSD Cameras have been optimized with compatible EDAX EDS detectors for efficient data collection at the highest speeds

Conclusion

The Velocity EBSD Camera Series provides the high-speed EBSD mapping capability combined with the accurate indexing needed to resolve crystallographic microstructures and help solve materials characterization challenges quickly and easily.

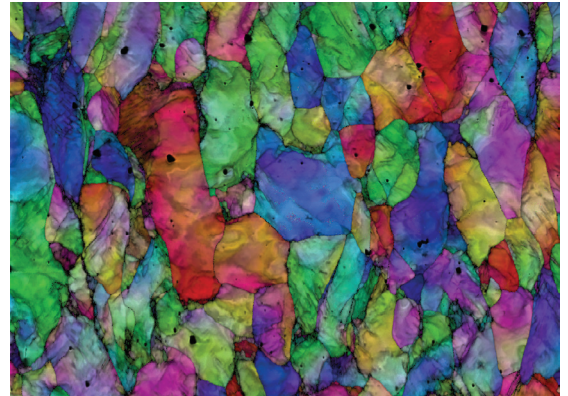


Figure 3. EBSD orientation map of deformed ferritic steel was collected at $\approx 2,500$ indexed points per second.

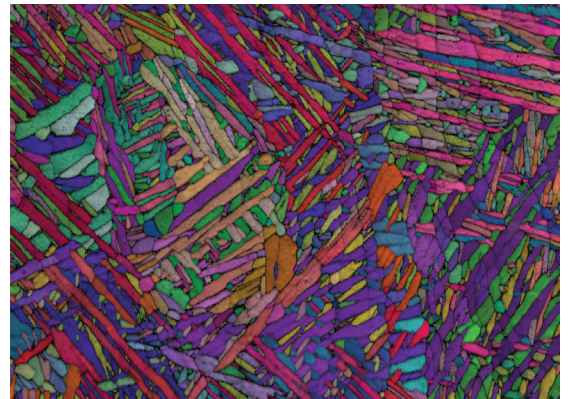


Figure 4. EBSD orientation map of additively manufactured titanium (HCP + BCC phases) was collected at $\approx 2,500$ indexed points per second.