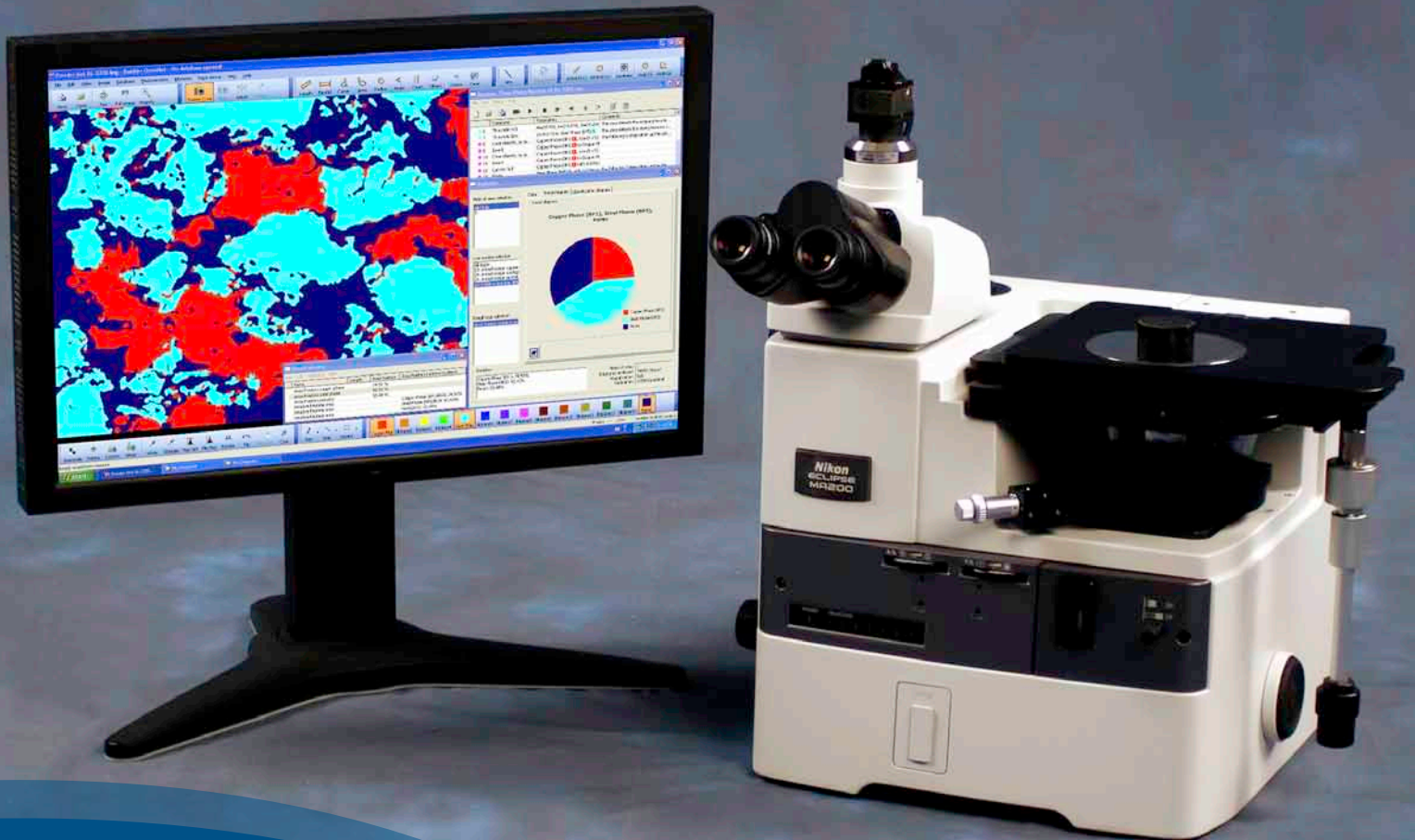


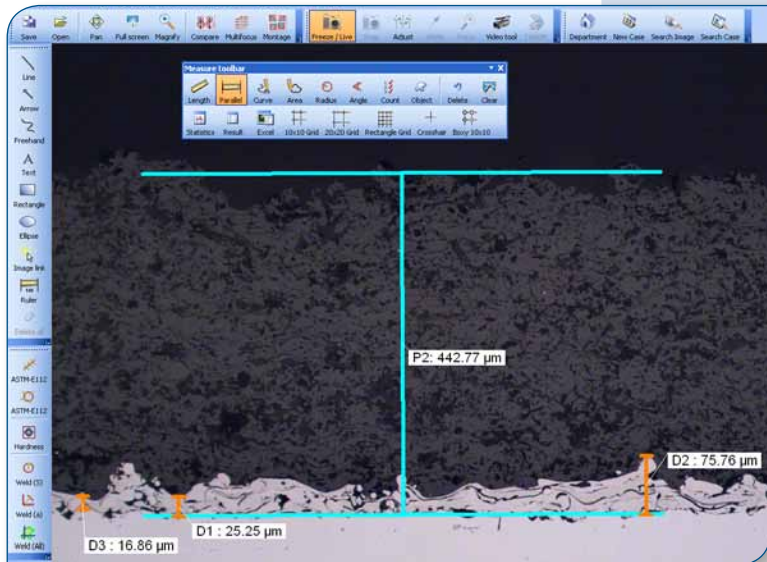
# OmniMet™

Solutions for Image Acquisition & Analysis



**BUEHLER**

Solutions for Materials Preparation, Testing and Analysis

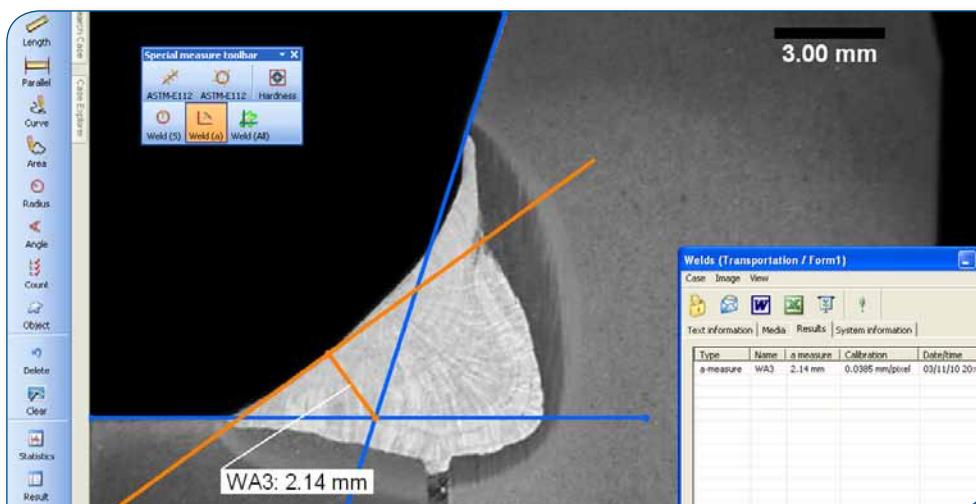
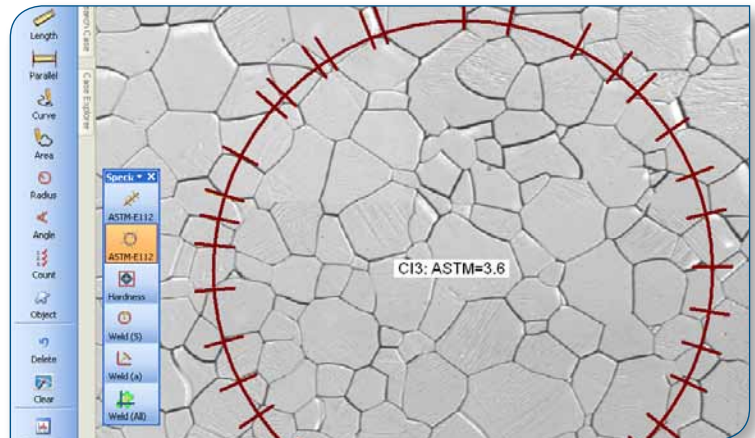


### Manual Interactive Measurements

Measure image features interactively using point-and-click tools. Images can be captured, measurements may be performed, stored in the database, or printed in reports.

### Microstructural Grain Size Investigations

Following ASTM E112 grain sizes may be estimated using linear and circular intercept techniques or grain areas using the various grain sizing applications.



### Characterizing a Welded Joint

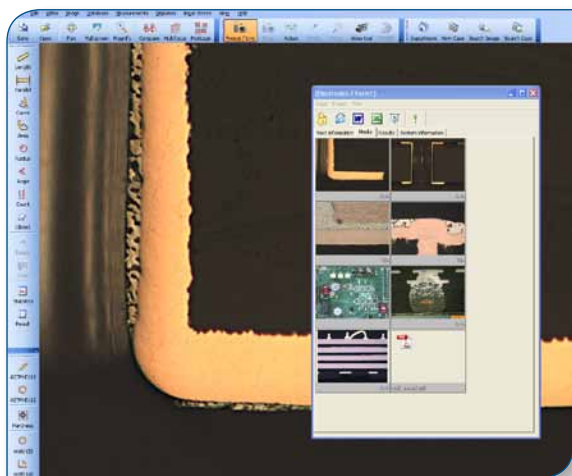
Welded joints can be assessed using different methods within the Welding application. In this image, an "A-measure" of the weld joint is depicted.



# OmniMet™ Complete Solutions for Digital Image Acquisition & Quantitative Analysis

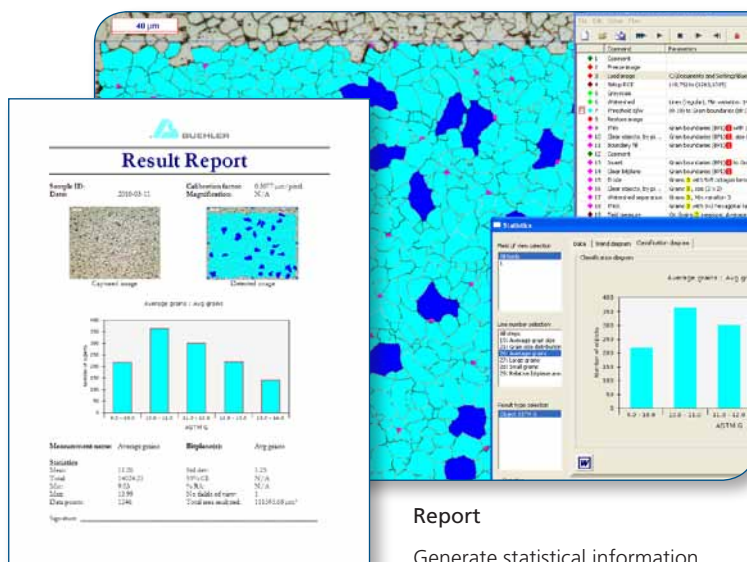
In keeping with our time-tested tradition of innovation and reliability, Buehler, the premier provider of solutions for material preparation, testing, and analysis, is proud to present the new OmniMet Digital Imaging System. OmniMet delivers powerful image analysis possibilities combined with flexible database functionality. OmniMet may be customized with intuitive user friendly point-and-click measurement options, pre-programmed analysis applications, or with capabilities for running user programmable analysis scripts. The database utilizes a multi-tiered approach to logically organize numerous users and image data with unprecedented ease. OmniMet is a versatile and customizable package that may be tailored to meet metrology needs of every laboratory requiring image data archiving and quantitative image analysis.

## Capture - Measure - Report - Organize



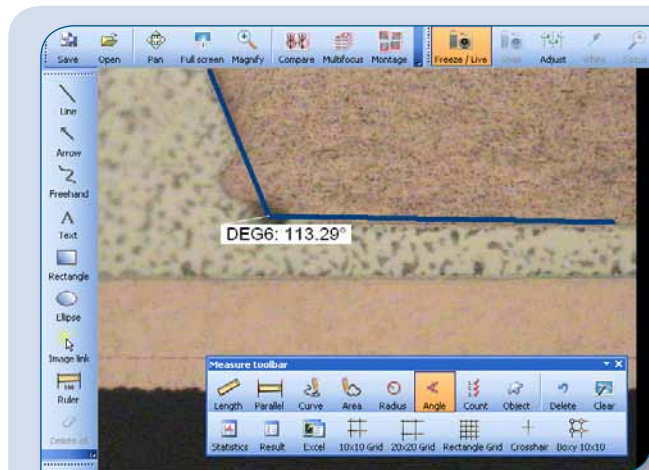
### Capture

OmniMet seamlessly interfaces with cameras and microscopes to capture, analyze, and store images and measurement results.



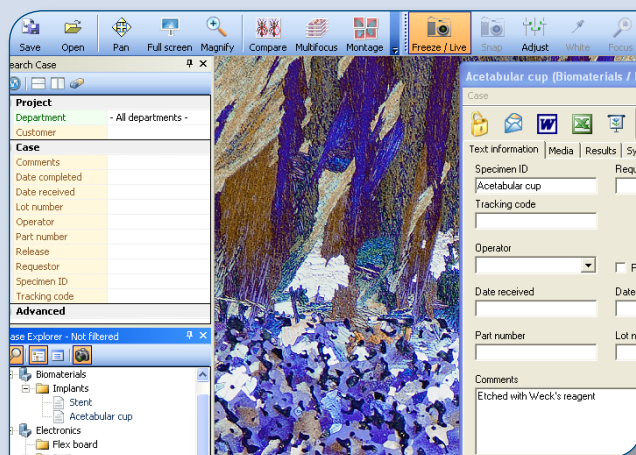
### Report

Generate statistical information, annotate images, send data to Microsoft® Excel, or create and publish results in a customizable Microsoft® Word report.



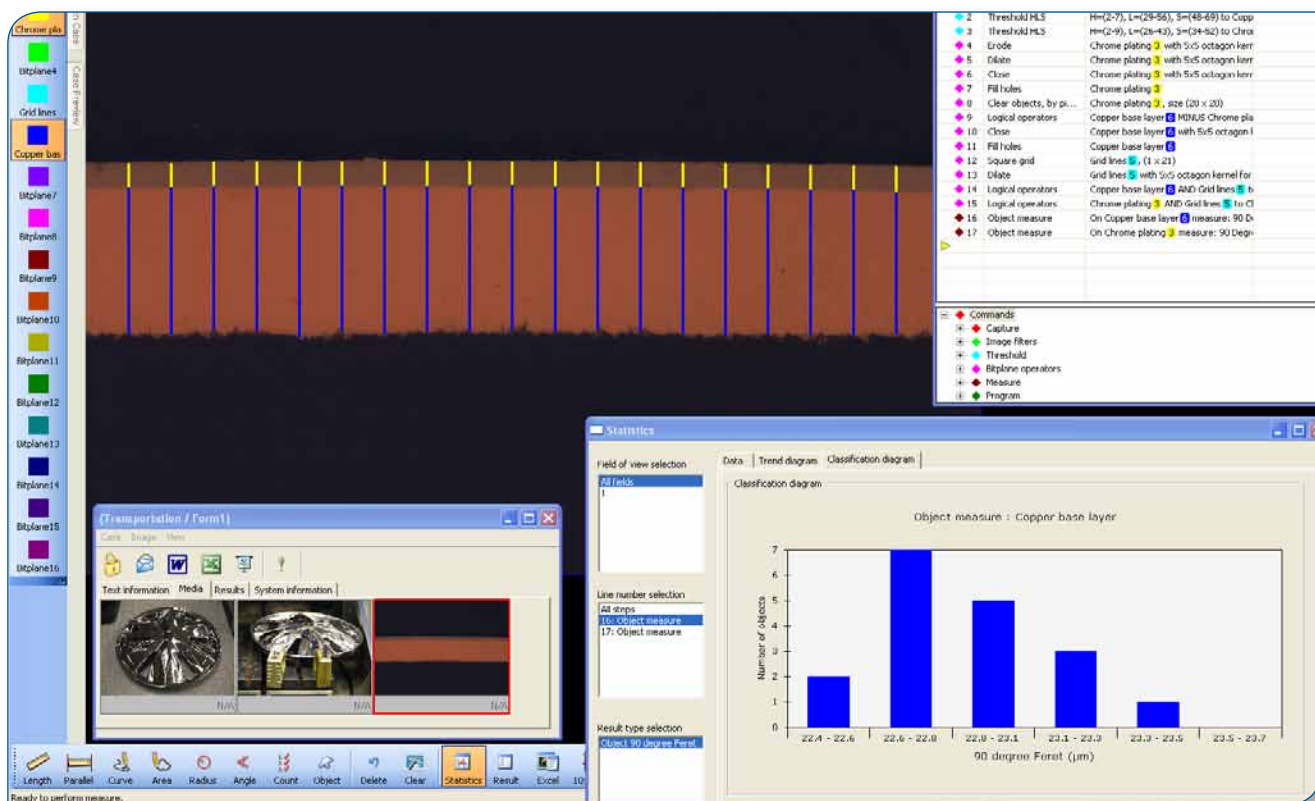
### Measure

Analyze images with interactive point-and-click measurement functions, automate analysis using one of our pre-programmed applications, or create your own analysis algorithms using the OmniMet ScriptBuilder.



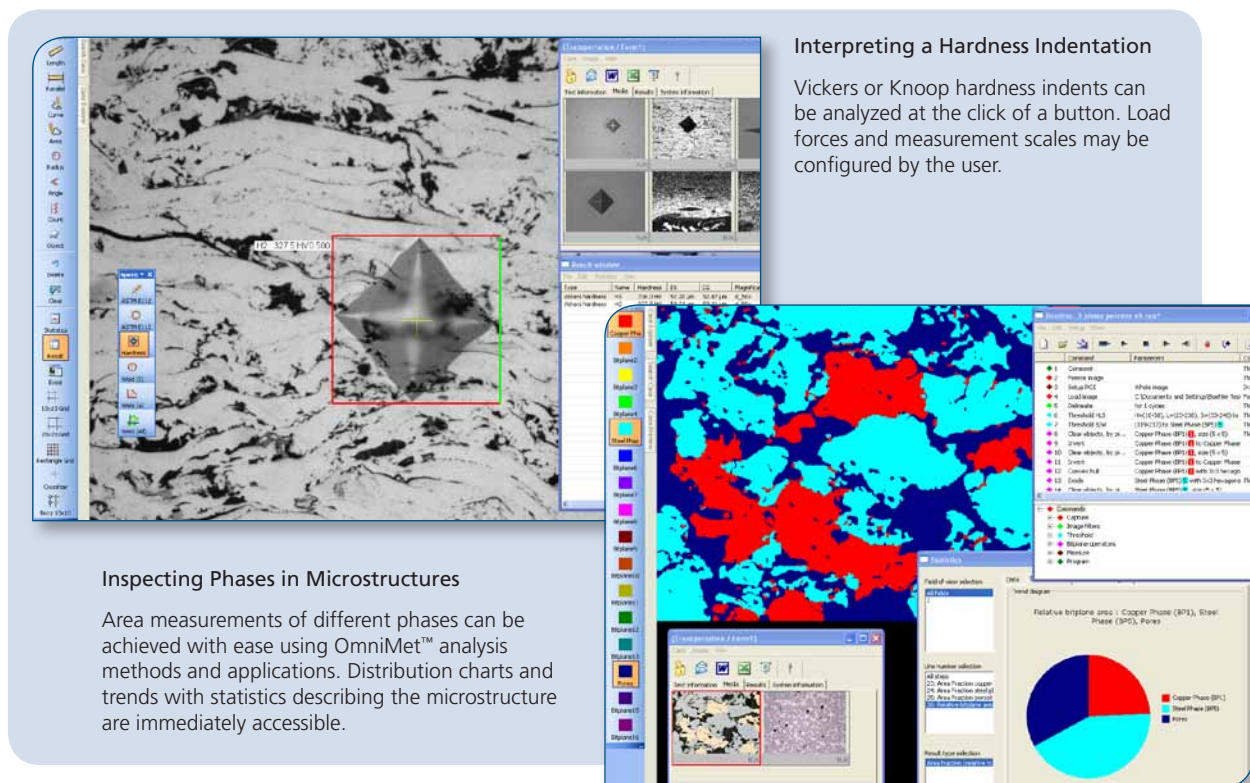
### Organize

Create a file structure, define a user profile, and organize image data and reports. Use the OmniMet database to create a hierarchy that meets your organization or department requirements. Multi-format data can be easily overviewed and retrieved from the database at any time.



### Investigating Coatings and Surface Finishes

Multiple measurements can be made and distributions of the results are readily accessible through the results window. In this case, a custom measurement application was used to automate the analysis. All data and images can be easily stored in the database.



### Interpreting a Hardness Indentation

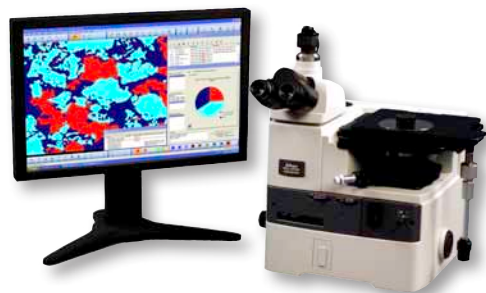
Vickers or Knoop hardness indents can be analyzed at the click of a button. Load forces and measurement scales may be configured by the user.

### Inspecting Phases in Microstructures

Area measurements of different phases can be achieved with ease using OmniMet™ analysis methods and applications. Distribution charts and trends with statistics describing the microstructure are immediately accessible.

## OmniMet™ Systems & Software-only Solutions

OmniMet is offered as a complete system (software and hardware) or software-only solution. Each version offers seamless point-and-click integration of microscopes, cameras, and image analysis software via an intuitive Microsoft® Windows® interface. In general any standard format image may be viewed directly from a calibrated microscope or be imported into OmniMet for analysis. OmniMet software is offered at different levels of flexibility, functionality, and analytical power to meet the metrology needs of every laboratory requiring image data archiving and quantitative image analysis.



### OmniMet Modular Digital Imaging System & Software Solutions

- Flexible platform with preconfigured system or software-only packages with optional accessories
- Local Area Network (LAN) support offered by OmniMet Viewer
- Systems include Microsoft® Windows® and Office Software
- All OmniMet products include OmniMet mousepad and Buehler SumMet™ guide

**Available Configurations** (Training available through webinars. Contact Buehler for details.)

Systems*	Software**	Configuration
86-1-1001	86-1-1000	<b>OmniMet Viewer</b> allows networked users to view images and measurements completed on an OmniMet imaging system on the same network.
86-1-1003	86-1-1002	<b>OmniMet Basic</b> offers imaging system calibration, image capture, manual measurements, database for archiving, and MS Office report templates for presenting results. Measurements include lengths, width, area, curve length, radius, angles, text annotations, and scalebars. Imaging Applications may be added for specific applications.
86-1-1005	86-1-1004	<b>OmniMet Advanced</b> offers imaging system calibration, image capture, manual measurements, databases for archiving, MS Office report templates for presenting results, and enhanced functionality for handling analytical results. Imaging or Advanced Applications may be added for specific applications.
86-1-1007	86-1-1006	<b>OmniMet Express</b> offers imaging system calibration, image capture, manual measurements, databases for archiving, MS Office report templates for presenting results, and enhanced functionality for handling analytical results. Imaging, Advanced and Express Applications may be added for specific applications.
86-1-1009	86-1-1008	<b>OmniMet Enterprise</b> offers imaging system calibration, image capture, manual measurements, databases for archiving, MS Office report templates for presenting results, and enhanced functionality for handling analytical results. Imaging, Advanced, Express and Premium Applications may be added for specific applications. ScriptBuilder enables the user to write fully customizable analysis routines for complete control to develop customized image analysis solutions.

\* Software Only package includes software, mousepad, and SumMet CD and may only be installed on a Windows 7 computer, 32-bit with MS Office 2010

\*\* System Package includes software pre-installed on a W7, 32-bit workstation with MS Office 2010, mousepad, and SumMet CD. Includes keyboard and mouse, does not include a monitor.

### Upgrades and Updates\*:

Existing customers may update their OmniMet product to the latest versions. Additionally lower level OmniMet software packages may be upgraded to higher level packages for increased functionality.

#### Upgrade OmniMet to a higher functional level:

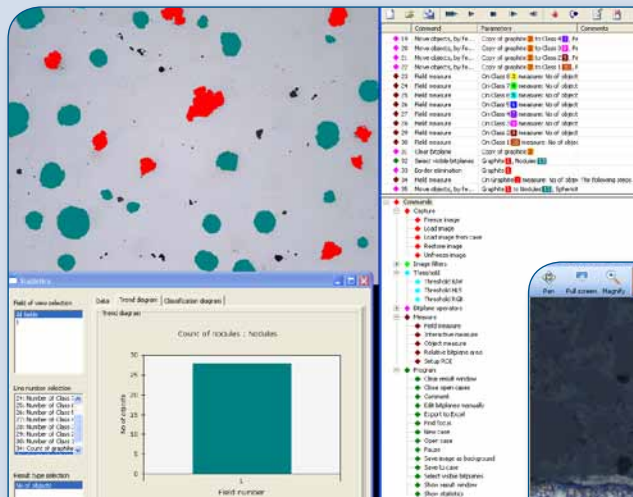
Upgrade From / To	Capture Advanced	Express	Enterprise
Capture Basic	86-4002	86-3002	86-1002
Capture Advanced		86-3004	86-1004
Express			86-1003

#### Update OmniMet to the latest software release:

86-4202 Update OmniMet Basic  
 86-4204 Update OmniMet Advanced  
 86-4201 Update OmniMet Express  
 86-4203 Update OmniMet Enterprise

\* Customer license number and site ID MUST BE INCLUDED with purchase order. Training is not included but is a strongly recommended.



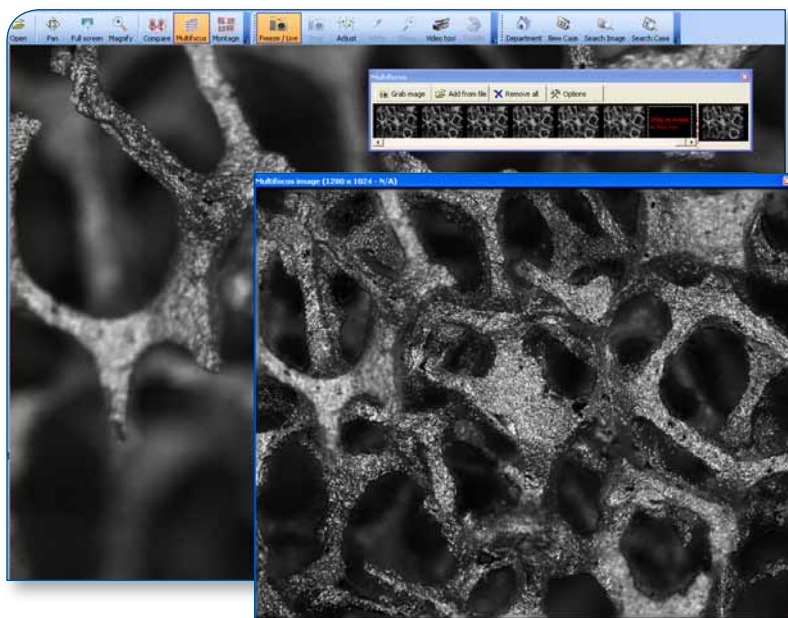
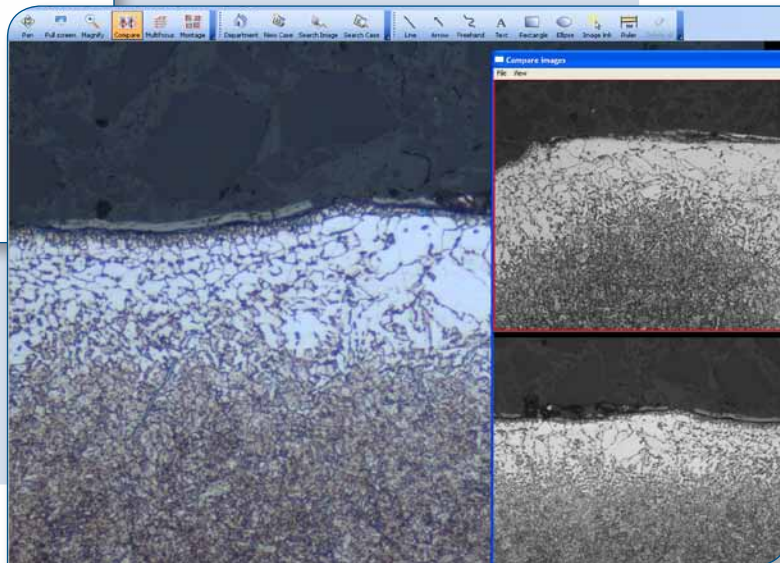


### Visually Comparing Multiple Images

Images may be directly compared using the comparison functions within OmniMet. Two or more images may be opened side by side and inspected visually. Take advantage of the option to resize multiple images to the same magnification.

### Writing Analysis Routines with the OmniMet™ ScriptBuilder

The full power of OmniMet image analysis may be realized using the OmniMet ScriptBuilder. These scripts are custom analysis applications written to automate image analysis. Significant time may be saved by writing reusable applications to handle common image analyses and complex procedures.

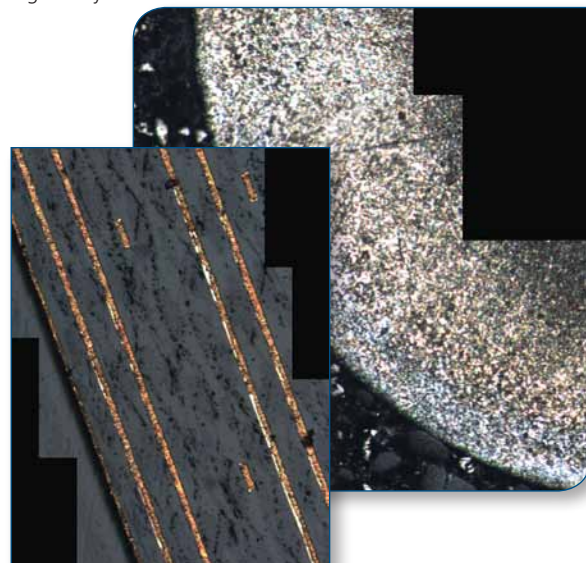


### Multi-Focal Imaging

A multi-focal image of Aluminum foam. In this case, due to the non-flat nature of the surface, the image needs to be focused in multiple planes to create a multi-focal image suitable for subsequent analysis.

### Composite Images using Mosaic Image Stitching

Larger images may be easily stitched together using the Mosaic application. If the single view images are calibrated then the larger stitched image will also be calibrated and suitable for quantitative image analysis



## OmniMet™ Features & Optional Applications

Description	Viewer	Basic	Advanced	Express	Enterprise
<b>Database Functionality</b>					
Database Interface & Creation	•	•	•	•	•
Database Administration		•	•	•	•
<b>Image Control</b>					
Load and Save	•	•	•	•	•
Brightness, Auto-White Balance, Rotate, Color Correction, Digital Zoom, Presentation, Calibration & Annotation	•	•	•	•	•
<b>Imaging Applications</b>					
Multi-Focal Images (see details for 86-4130)	◊	◊	◊	◊	◊
Mosaic Multiple Image Stitching Module (see details for 86-4140)	◊	◊	◊	◊	◊
<b>Data Presentation</b>					
Report Data, Report Generator (requires Microsoft® Office programs)	•	•	•	•	•
Results Window with measurements log			•	•	•
Color Threshold (size, intensity), 16 report and Measure Bitplanes				•	•
<b>Hardware Interfacing</b>					
Camera Interface (USB, EEE I394, Capture Cards, DirectShow, Twain, etc.) & Motorized Stage Controller		•	•	•	•
<b>Measurement &amp; Analysis Applications</b>					
Length, Width, Area, Exterior Curve Length	•	•	•	•	•
Circle Radius, Angles, Object Counting		•	•	•	•
Advanced Applications			◊	◊	◊
Express Applications				◊	•
Premium Applications				◊	◊
<b>Automated Image Analysis</b>					
Running Pre-programmed Applications				•	•
Custom Applications (86-3010)				◊	◊
ScriptBuilder for Writing Analysis Applications					•

• Included with package

◊ Optional module (purchased separately)

## Optional Modules

### Imaging Applications

**86-4130 OmniMet Multi-Focal Images** Used to create focused images from multiple images of the same specimen when the viewing surface exists in different focal planes. Beneficial for removing edge rounding or viewing rougher surfaces when sharply focused images are required for analysis.

**81-4140 OmniMet Mosaic Multiple Image Stitching** Used to stitch multiple images together to create one large, calibrated stitched image. Measurements are possible on the stitched image. Useful for documenting features larger than one field of view. A motorized stage is not required.

### Advanced Applications

**86-4110 OmniMet™ Object Measurements** 'Single phase' image analysis for measurements of image features and field characteristics: Area Fraction, Area Position, Number of Objects, Perimeter, Compactness, Length, Feret Diameter, Center of Gravity, Inclusion and Exclusion of Objects by Size.

**86-4120 OmniMet Hardness** Measure Vickers and Knoop indentations interactively, quickly, and easily. Allows load force in gf or kgf and delivers accurate HV/HK values along with the diagonal indent dimensions.

**86-4115 OmniMet Weld Measurement** Tools for determining weld characteristics. Use a circle radius to determine effective weld depth, angular A-measurements, or full weld outline characterization to determine effective depth, penetration and area.

**86-4125 OmniMet Grain Size** Measure grain size interactively using ASTM-E112 methodology with linear intercept or circle intercept methods.

## Optional Applications

### Express Applications

- 86-3050 **Manual Interactive Thickness** Measurements of line lengths with statistics for length and thickness measurements.
- 86-3100 **Grain Size** Automated grain size measurements in accordance with ASTM E112. Average grain size by intercept methods and grain size distributions using areas are delivered. Additional processing identifies ALA grain size and duplex populations in accordance to ASTM E930 and ASTM E1181 where appropriate. ISO 643 compliant.
- 86-3300 **Coating Layer Thickness** Measures coating, plating or layer thickness of cross-sectioned samples in compliance with ASTM B487.
- 86-3500 **Particle Sizing** Detects and measures particles in a field of view providing statistics on quantity and size distribution. Suitable for non-agglomerated particulates, precipitates, and powders.
- 86-3550 **Porosity Assessment** Provides automated measurements of fine holes or pores in a material.
- 86-3750 **Dendritic Spacing** Delivers measurements of lengths between dendrite arms in cast aluminum alloys.

### Premium Applications

- 86-3150 **Intercept Grain Size** Automated grain size determination delivering average grain size per field using straight line and circular intercept methods in accordance with ASTM E112.
- 86-3310 **Surface Roughness** Surface roughness measurements in accordance with ASME B46.1-02
- 86-3350 **Decarburization Depth Assessment** Determines depth of total or partial decarburization according to the relative amount of free ferrite present according to ASTM E1077.
- 86-3400 **Graphite in Cast Iron** Automated analysis of graphite in cast iron in accordance with ASTM A247. Measures size and class count of graphite nodules and area percentages of ferrite graphite and pearlite. For gray iron graphite length is also provided.
- 86-3525 **Cleanliness Assessment** Provides cleanliness assessment of particles on filter paper meeting the requirements of ISO 4406.

### Premium Applications (cont'd)

- 86-3600 **Indentation Hardness** Provides the capability to measure and analyze Knoop and Vickers indents in accordance with ASTM E384. Reports can be exported in HK, HV, HRC, and HRB scales with graphical displays of the hardness profile.
- 86-3700 **Banding Assessment** Determines the degree of microstructural banding in conformance with ASTM E1268. Delivers quantitative information on the degree of orientation, anisotropy index, and mean feature spacing.
- 86-3850 **Inclusion Rating** Determines area percentage, mean free path distances, and average numbers of intercepts for oxide and sulfide stringers in ferrous metals in accordance with ASTM E1245.

### Digital Cameras:

- 86-0274 uEye 1460-C, 0.5in, CMOS, 11fps, 2048x1536, 3.1MP, QXGA, C-mount digital USB color camera
- 86-0270 uEye 1460LE-C, 0.5in, CMOS, 11fps, 2048x1536, 3.1MP, SUXGA, C-mount digital USB color camera, (0.8MP, up to 37fps using 2x2 pixel binning)
- 86-10004 uEye 1480-C, 0.5in, CMOS, 5-6fps, 2560x1920, 5MP, QSXGA, C-mount digital USB color camera
- 86-10005 uEye 1490-C, 0.5in, CMOS, 3fps, 3840x2748, 10MP, QHDTV, C-mount digital USB color camera
- 86-0276 uEye 2230-C, 0.33in, CCD, 30fps, 1024x768, 0.79MP, XGA, C-mount digital USB color camera
- 86-0278 uEye 2240-C, 0.5in, CCD, 30fps, 1280x1024, 1.31MP, SXGA, C-mount digital USB color camera
- 86-0280 uEye 2250-C, 0.55in, CCD, 15fps, 1600x1200, 1.92MP, UXGA, C-mount digital USB color camera

### OmniMet Hardware Accessories

- 1390-3002 NIST Traceable Stage Micrometer for Calibrating
- 86-5105 Foot Pedal Switch
- 86-5120 Objective Bar Coding System

Buehler offers a range of industrial and stereo microscopes, C-mount adapters and digital cameras suitable for interfacing with OmniMet. Additionally, we offer motorized stages for various microscopes, workstations, relevant PC peripherals, and technical training. Please contact Buehler for details.

*For a complete listing of consumables, please refer to our Buehler Buyer's Guide or contact your local Buehler Sales Engineer. Buehler continuously makes product improvements; therefore technical specifications are subject to change without notice.*

Sectioning  
AbrasiMet • AbrasiMatic • IsoMet

Mounting  
SimpliMet

Grinding & Polishing  
EcoMet • AutoMet • MetaServ

Imaging & Analysis  
OmniMet

Hardness Testing  
Wilson® Hardness



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