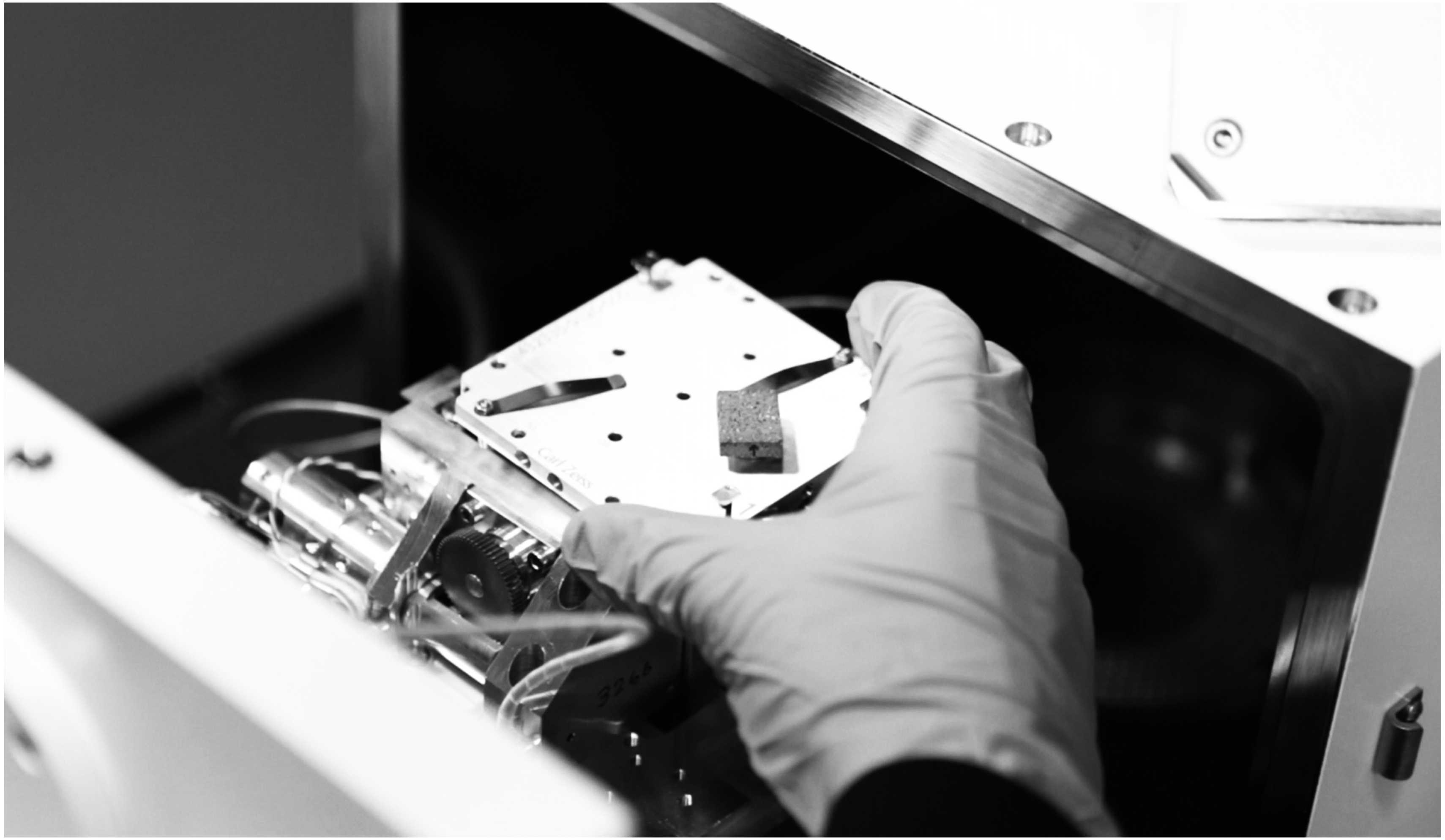


Product Information
Version 2.1

ZEISS Shuttle & Find

Bridge the Micro and Nano World in Materials Inspection and Analysis

Bridge the Micro and Nano World in Materials Inspection and Analysis

Enhance Productivity with Correlative Microscopy

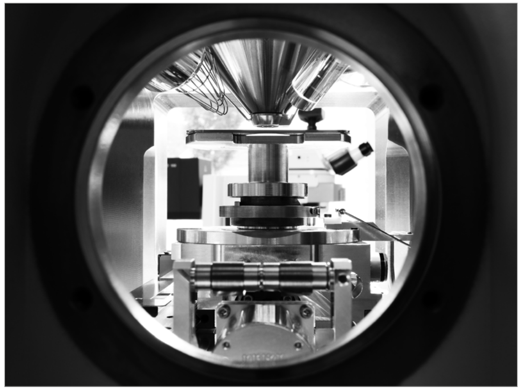
Are you looking for a way to effectively combine different imaging techniques and analytical methods? Shuttle & Find offers precisely this: An easy-to-use, highly productive workflow from a light to an electron microscope – and vice versa.

The workflow between the two microscope systems has never been so easy. Instead of wasting valuable time relocating regions of interest from microscope to microscope, you can now navigate swiftly with only a few mouse clicks. Regions of interest, tagged in one system, you recover within seconds in the other system.

Everything is fully integrated into the ZEN core imaging software, enabling the control of all required Shuttle & Find functionality on both the light and electron microscope.

On top of that, you can easily open Shuttle & Find images from the digital microscope Smartzoom 5, to recover regions of interest identified in your routine work piece inspection workflow.

Additionally to the Shuttle & Find workflow between light microscopy and electron microscopy, ZEN core offers an extensive range of image acquisition, analysis and reporting functionality.



Simpler. More intelligent. More integrated.

- In Brief
- **The Advantages**
- The Applications
- The System
- Technology and Details
- Service

Discover New Dimensions of Information

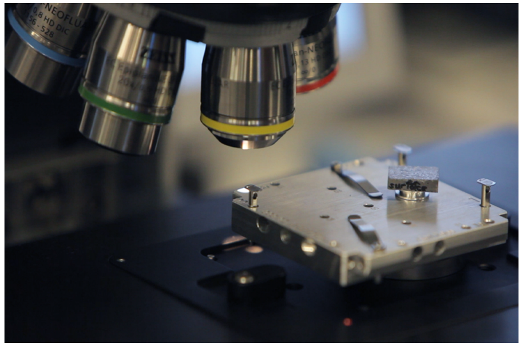
Combine contrasting techniques from your light microscope with complementary contrast methods and analytical capabilities of your ZEISS electron microscope. Perform comprehensive and time effective characterization of your samples and work pieces. Your light microscope provides information about size, morphology and color of your sample. Your electron microscope provides sub-micrometer resolution and / or elemental composition. Use the overlay functionality of ZEN core to spatially correlate results obtained from the different types of microscopes.

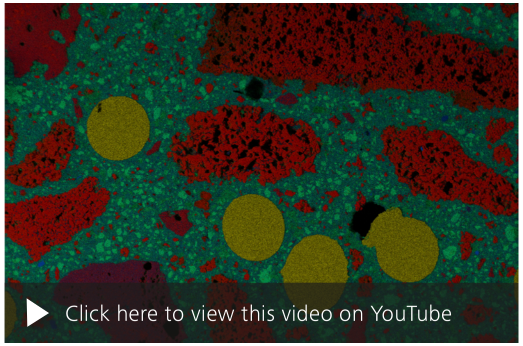
Do not Compromise in Individual System Capabilities and Performance

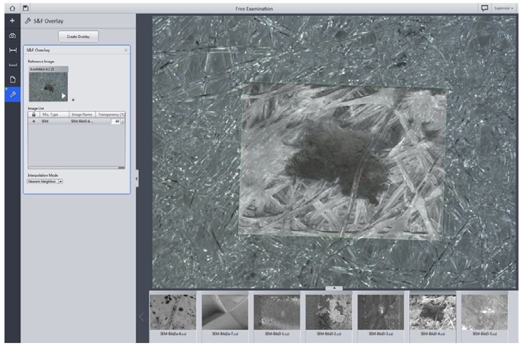
Choose from the industry’s broadest portfolio of ZEISS microscopes. Now you can combine your light or digital microscope with your scanning electron microscope. With Shuttle & Find you will move quickly and efficiently from system to system to perform the most comprehensive characterization of your materials. Choose from the ZEISS portfolio to build flexible systems tailored to your applications.

Fully Integrated into Your Workflow

Shuttle & Find is fully integrated into the ZEN core imaging software. Deploy this easy-to-use and powerful software to add correlative benefits to your workflows. Control all necessary functions of your light and electron microscopes, store and access the data from your central archive, and enhance your productivity employing smooth workflows bridging your different imaging platforms.







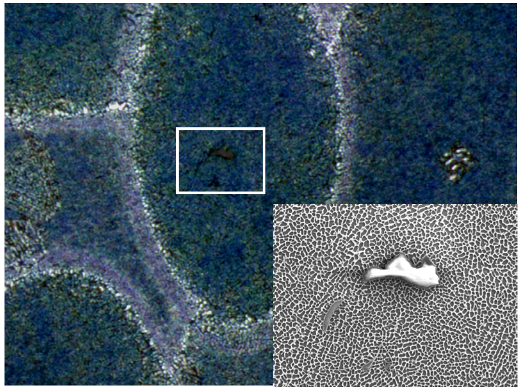
› In Brief
› **The Advantages**
› The Applications
› The System
› Technology and Details
› Service

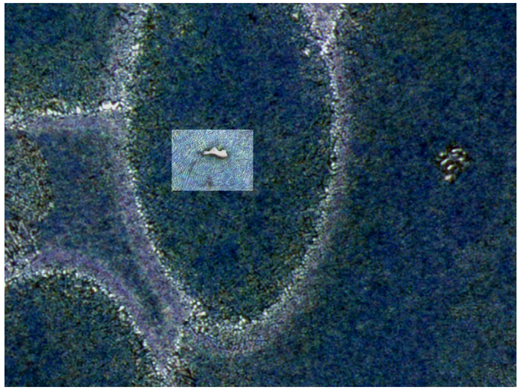
Your Insights into the Technology Behind it

Fast Calibration
Mount your sample in a ZEISS correlative microscopy holder. After a semi-automatic 3-point calibration you are ready to go. Investigate your sample and capture images. Then transfer your sample along with the holder into the scanning electron microscope.

Easy Recovery
Perform the same fast calibration in your scanning electron microscope. Out of the archive you can open the images from your light microscope, and directly access them on your electron microscope. Or open Shuttle & Find enabled images from a Smartzoom 5 digital microscope to relocate the regions of interest identified in your routine work piece inspection workflow.

Precise Correlation
After you have acquired all of your images from the different microscopes, you can now create correlative image overlays. ZEN core intuitively facilitates the alignment and resizing of images from your light and electron microscopes to superimpose your data. The resulting images can be saved and used in your reports.



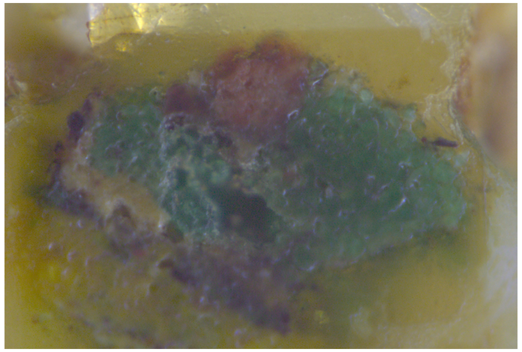


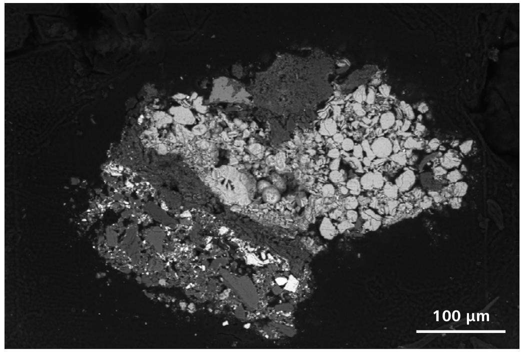
Tailored Precisely to Your Applications

Typical Applications, Typical Samples	Task	ZEISS Shuttle & Find Offers
Window Glass in Churches	Identify arsenic particles in window glass of churches. Arsen can only be detected by chemical analysis but searching for suspicious regions in the electron microscope is time consuming	Shuttle & Find allows the preselection of green regions which contain arsen in the light microscope. Quickly relocate the ROI on the SEM using Shuttle & Find to perform further imaging and EDX analysis. Correlate the resulting images of LM and EDX measurements and export as overlay images.
Chemical Vapor Deposition Grown Graphene	Characterize graphene grown by chemical vapor deposition and identify singe and multilayer graphene	Shuttle & Find allows a quick scan of the grown graphene layers and easily recovery of the positions in the SEM. Further connection to a Raman microscope allows to gather information about the layer structure.
Fractured Surface	Investigate fractured surface and perform failure analysis, detect cause of crack	Shuttle & Find allows to examine the source of cracks. Correlat LM and EM image to show, if a pore or an inclusion was cause of the component’s crack.
Additive Manufacturing	Investigate 3D printed component on inclusions, particles and pores	Shuttle & Find facilitates easy recovery of defects in 3D printed materials on an electron microscope after detection in the light microscope. Correlation of LM and EM image allows to draw conclusions to the production process.

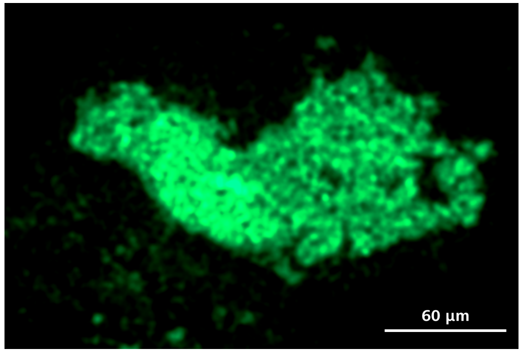
ZEISS Shuttle & Find at Work

Green Arsenic Particle


Light Microscope, reflected light

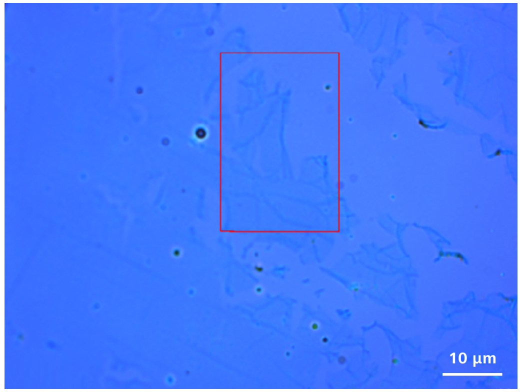


Scanning Electron Microscope, BSD detector

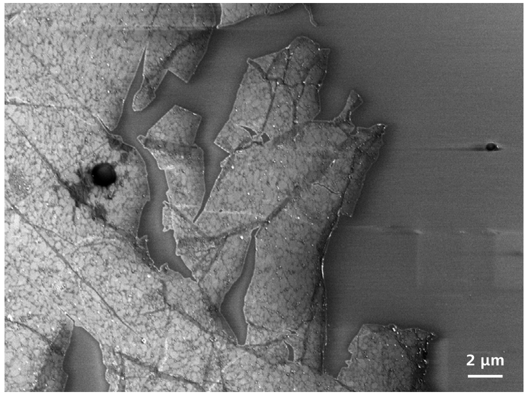


Scanning Electron Microscope, EDX

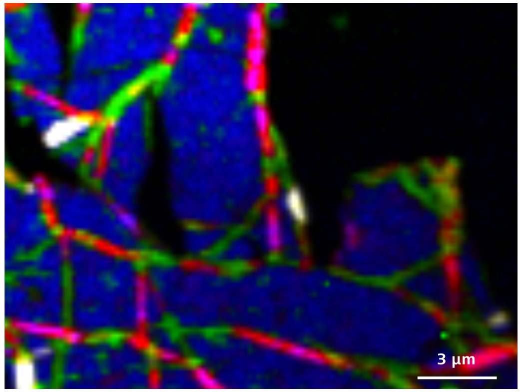
Chemical Vapor Deposition (CVD) Graphene



Light Microscope, transmitted light

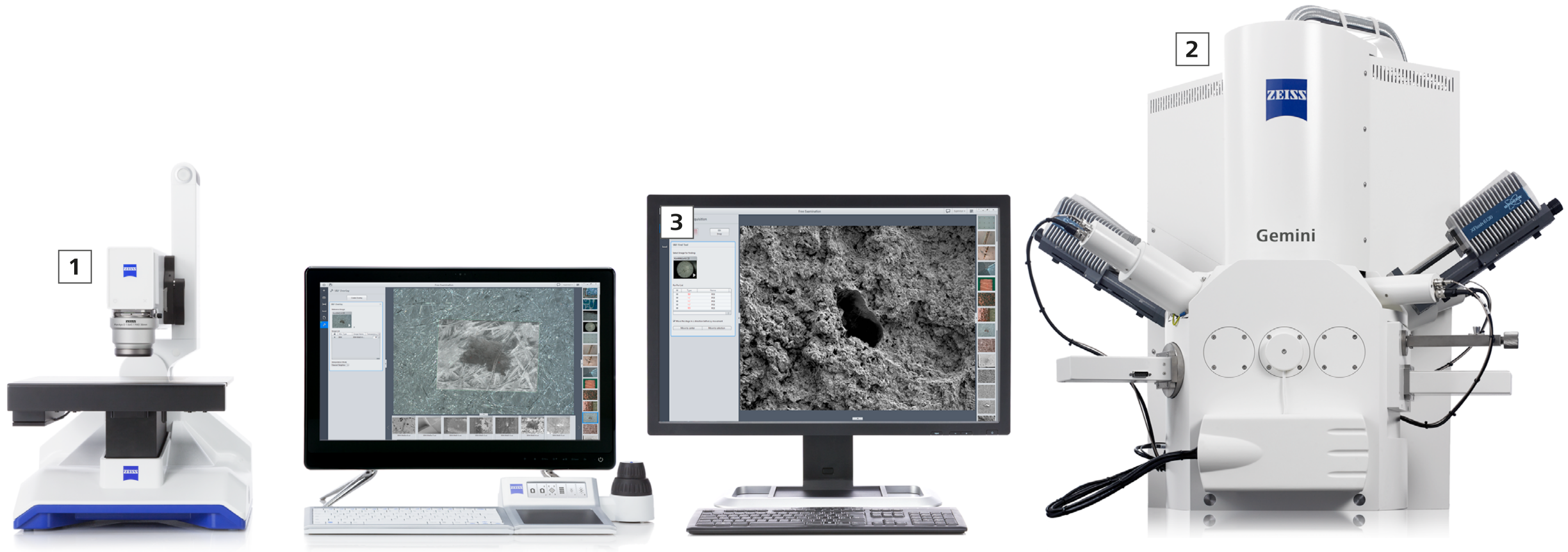


Scanning Electron Microscope, Inlens detector



Light Microscope, Raman image

Your Flexible Choice of Components



1 Light microscopes
- SteREO Discovery.V12, SteREO Discovery.V20
- Axio Zoom.V16
- Axioscope 7
- Axio Imager.M2m, Axio Imager.Z2m, Axio Imager Vario
- Axio Observer 5, Axio Observer 7
- Smartzoom 5

2 Electron microscopes
- EVO
- Sigma
- Merlin
- Auriga
- GeminiSEM
- Crossbeam

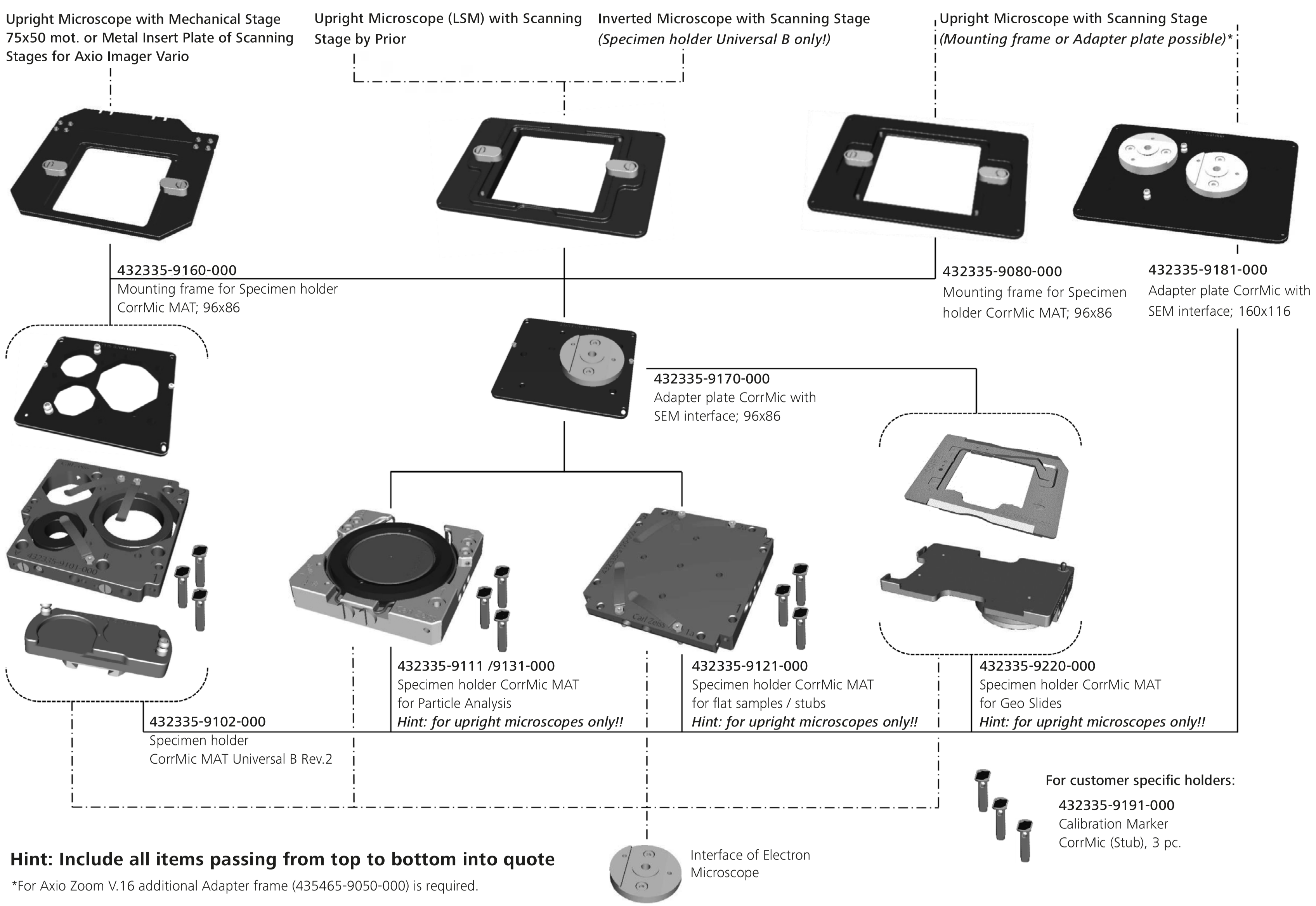
3 Software

Light microscopes:
- ZEN core or AxioVision
- Software Module: Shuttle & Find

Electron microscopes:
- SmartSEM
- ZEN core or AxioVision
- Software Module: Shuttle & Find

4 Accessories
- Specimen Holder: Universal, Particle Analysis, Flat Samples, Geo Slide
- Mounting Frames, Adapter Plates
- SEM Adapter
- Calibration Marker

System Overview



Hint: Include all items passing from top to bottom into quote

*For Axio Zoom V.16 additional Adapter frame (435465-9050-000) is required.

Technical Specifications

Microscopes	
Light microscopes	SteREO Discovery.V12, SteREO Discovery.V20, Axio Zoom.V16, Axioscope 7, Axio Imager.M2m, Axio Imager.Z2m, Axio Imager Vario, Axio Observer 5, Axio Observer 7, Smartzoom 5
Electron microscopes	EVO, Sigma, Merlin, Auriga, GeminiSEM, Crossbeam

Accessories	
Specimen holder CorrMic MAT Universal B (D) for mounting various specimens	mount for three metallurgical specimens:
	1 specimen d = 40 mm or 1x d = 30 mm via adapter
	2 specimens d = 1" or 1x d = 1" and via adapter 1x d = ½"
	holder for thin specimens:
	mount for 2 SEM stubs with 1" surface and ⅛" pin
	mount for 3 calibration markers for Correlative Microscopy
	mount for SEM adapter
	incl. adapter plate 96 x 86 and installation aid
	incl. SEM stubs with ½" surface and ⅛" pin, 10 pc.
	incl. 3 calibration markers for correlative microscopy
	compatible with airlock 80 mm
Specimen holder CorrMic MAT for flat samples/stubs (D)	4 height adjustable spring clips for fixation of various specimens
	maximum specimen size 2.5" x 3"
	mount for 4 SEM stubs with ⅛" pin
	mount for 3 calibration markers for Correlative Microscopy (available separately)
	dimension 78 mm x 78 mm
	with SEM adapter
	incl. SEM stubs with ½" surface and ⅛" pin, 10 pc.
	compatible with airlock 80 mm

Technical Specifications

› In Brief
› The Advantages
› The Applications
› The System
› **Technology and Details**
› Service

Accessories	
Specimen holder CorrMic MAT for Particle Analysis; 47 mm (D)	clamping mechanism for filter diameter 47 mm
	max. scan diameter: 37 mm
	filter mount without cover glass
	mount for 3 calibration markers for Correlative Microscopy (available separately)
	stamping tool for marking filters for orientated filter installation
	with SEM adapter
	compatible with airlock 80 mm
Specimen holder CorrMic MAT for Particle Analysis; 50 mm (D)	clamping mechanism for filter diameter 50 mm
	max. scan diameter: 40 mm
	filter mount without cover glass
	mount for 3 calibration markers for Correlative Microscopy (available separately)
	stamping tool for marking filters for orientated filter installation
	with SEM adapter
	compatible with airlock 80 mm
Specimen holder CorrMic MAT for Geo Slides (D)	suitable for Geo Slides within the following dimensions: 46...48 mm × 26...28 mm × 1.0...1.6 mm
	3 calibration reference markers on holder to define coordinate system for Correlative Microscopy
	incl. SEM adapter
	compatible with airlock 80 mm
	outer dimensions 75.5 mm × 51.5 mm × 1.3 mm (W × D × H)
Compatibility	Shuttle & Find: ZEN core SP1 with SmartSEM 6.0 or higher; AxioVision 4.9.1 SP2 with SmartSEM 5.07 or higher
Calibration	manual or semi-automatic calibration of holders with automatic software detection of markers
	storage and recall of multiple regions and points of interest per image
	ROI is automatically adjusted to the magnification level of the EM
Additional functionalities	image overlay with functionality to correct for translation, rotation or skew
Relocation accuracy	<-25 µm (coarse); <-10 µm (fine) – depending on stages

Count on Service in the True Sense of the Word

Because the ZEISS microscope system is one of your most important tools, we make sure it is always ready to perform. What's more, we'll see to it that you are employing all the options that get the best from your microscope. You can choose from a range of service products, each delivered by highly qualified ZEISS specialists who will support you long beyond the purchase of your system. Our aim is to enable you to experience those special moments that inspire your work.

Repair. Maintain. Optimize.
Attain maximum uptime with your microscope. A ZEISS Protect Service Agreement lets you budget for operating costs, all the while reducing costly downtime and achieving the best results through the improved performance of your system. Choose from service agreements designed to give you a range of options and control levels. We'll work with you to select the service program that addresses your system needs and usage requirements, in line with your organization's standard practices.

Our service on-demand also brings you distinct advantages. ZEISS service staff will analyze issues at hand and resolve them – whether using remote maintenance software or working on site.

Enhance Your Microscope System.
Your ZEISS microscope system is designed for a variety of updates: open interfaces allow you to maintain a high technological level at all times. As a result you'll work more efficiently now, while extending the productive lifetime of your microscope as new update possibilities come on stream.

Profit from the optimized performance of your microscope system with services from ZEISS – now and for years to come.

>> www.zeiss.com/microservice

Carl Zeiss Microscopy GmbH
07745 Jena, Germany
microscopy@zeiss.com
www.zeiss.com/corrmic-mat

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