Your solution to automated workflows



ZEISS Blockwise

Efficient user-centric automation for electron microscope control, image analysis, and measurements through intuitive visual workflow development

zeiss.com/blockwise

Seeing beyond

ZEISS Blockwise. End-to-end automation electron microscopy (EM) empowering you to boost productivity, throughput, and efficiency in failure analysis, quality assurance, and quality control.

Semiconductor labs face increasing pressure to deliver faster multi-site imaging, reliable analysis, and consistent results with fewer expert operators. ZEISS Blockwise® transforms workflows with intuitive automation enabling labs to save time, reduce errors, and boost productivity.

Key challenges in semiconductor labs

- Complex workflows: Manual coordination across multiple tools and sites slows throughput.
- Operator variability: Results vary between operators, shifts, and locations, reducing consistency.
- Time-consuming processes: Routine imaging and analysis tasks consume valuable expert time.
- Measurement inaccuracies: Errors undermine data quality and reduce confidence in decisions.
- Steep learning curve: Complex systems make training slower and adoption more difficult.
- Limited workflow support: Adapting workflows or adding automation often requires scarce expert resources.

From complexity to simplicity:
How ZEISS Blockwise transforms workflows

ZEISS Blockwise simplifies automated EM workflows with a visual, drag-and-drop interface that automates navigation, imaging, and feature measurements. By standardizing recipes, reducing operator variability, and integrating advanced tools like AI, labs can achieve consistent results, faster throughput, and greater efficiency—all without coding expertise.

With ZEISS Blockwise, labs can turn complex, operator-dependent processes into standardized, automated workflows, boosting productivity and ensuring reliable, repeatable results.

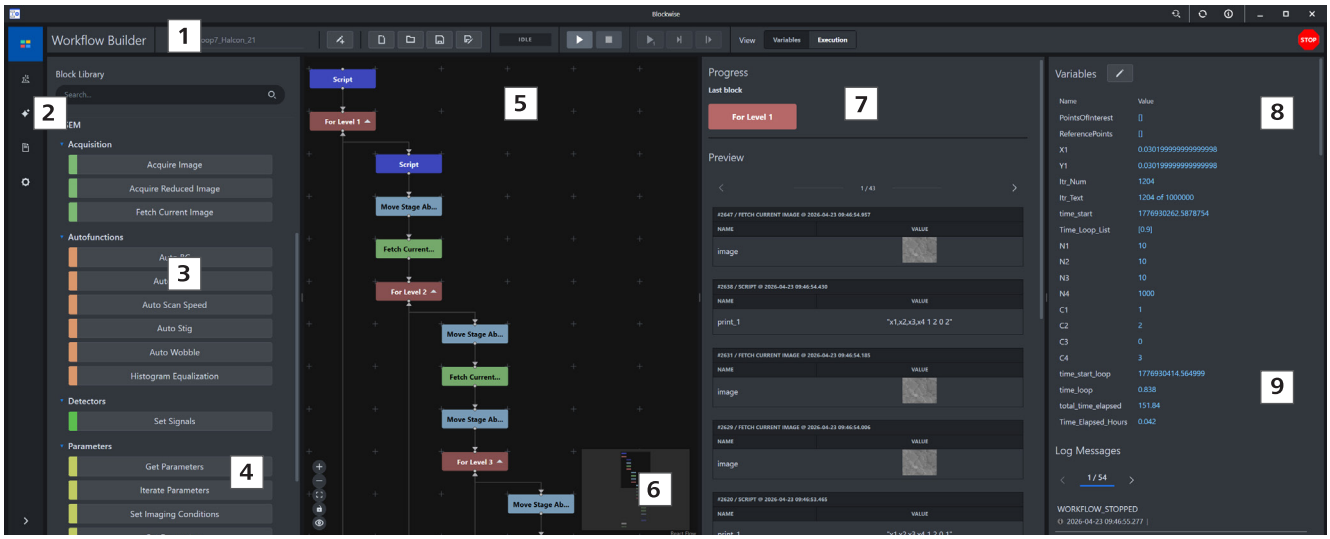


Figure 1 *Blockwise Workflow Builder with an all-in-one user interface. Numbered from 1 to 9, the individual highlights are listed below.*

1. **Workflow builder:** Choose from acquisition, AI-supported image analysis, logic, and reporting blocks in one interface.
2. **Simple portability:** Save and share workflows as files with minor adaptations, ensuring consistent use across systems, tools, and sites.
3. **AI toolbox:** Perform flexible 1D/2D measurements and statistical analysis within workflows for data-driven decisions.
4. **Customizable blocks**: Adjust parameters dynamically or extend functionality with Python scripting.
5. **Drag-and-drop interface:** Build workflows visually—no coding required for standard use cases.
6. **Closed-loop automation:** Automate feedback loops between acquisition, analysis, and instrument control.
7. **Process monitoring:** Preview results, track progress live, and react quickly.
8. **Full control and access:** Set parameters in each block or adjust these dynamically within the workflow.
9. **Immediate feedback:** Log states for debugging and robust error handling.

Automated cross-section feature finding

ZEISS Blockwise automated cross-section feature finding eliminates the slow, inconsistent process of manually searching for structures across multiple cross-sections.

By applying automation with repeatable imaging conditions, it increases throughput and ensures consistent, high-quality results. This powerful feature removes operator variability from your workflow, standardizing how structures and features are detected and reviewed, improving repeatability and significantly reducing overall cycle time.

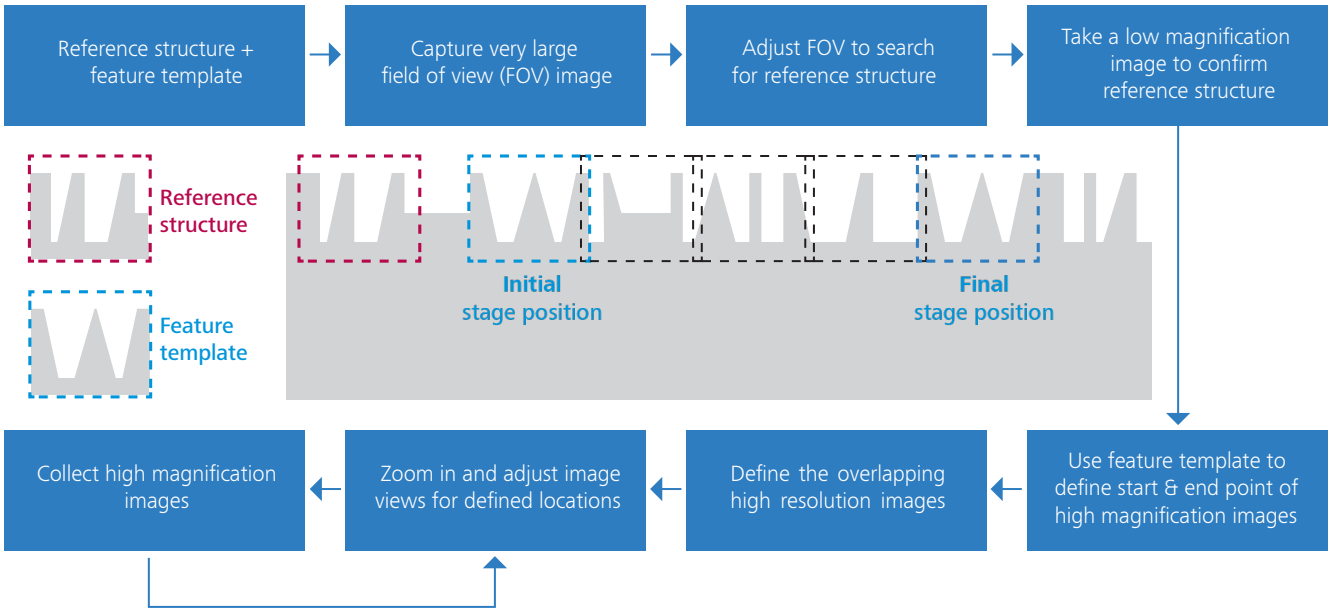


Figure 2: Schematic abstraction of the higher level workflow highlighting the the most important actions within the blocks.

Automated ECCI (electron channeling contrast imaging)

Automated ECCI with ZEISS Blockwise accelerates defect localization at the wafer level while preserving native specimen conditions. Inspect large areas without altering the surface, maintaining the true state of your sample throughout the workflow. By combining automated imaging and analysis, it replaces time-intensive methods like EBSD or TEM for routine defect assessments, improving throughput, consistency, and overall efficiency.

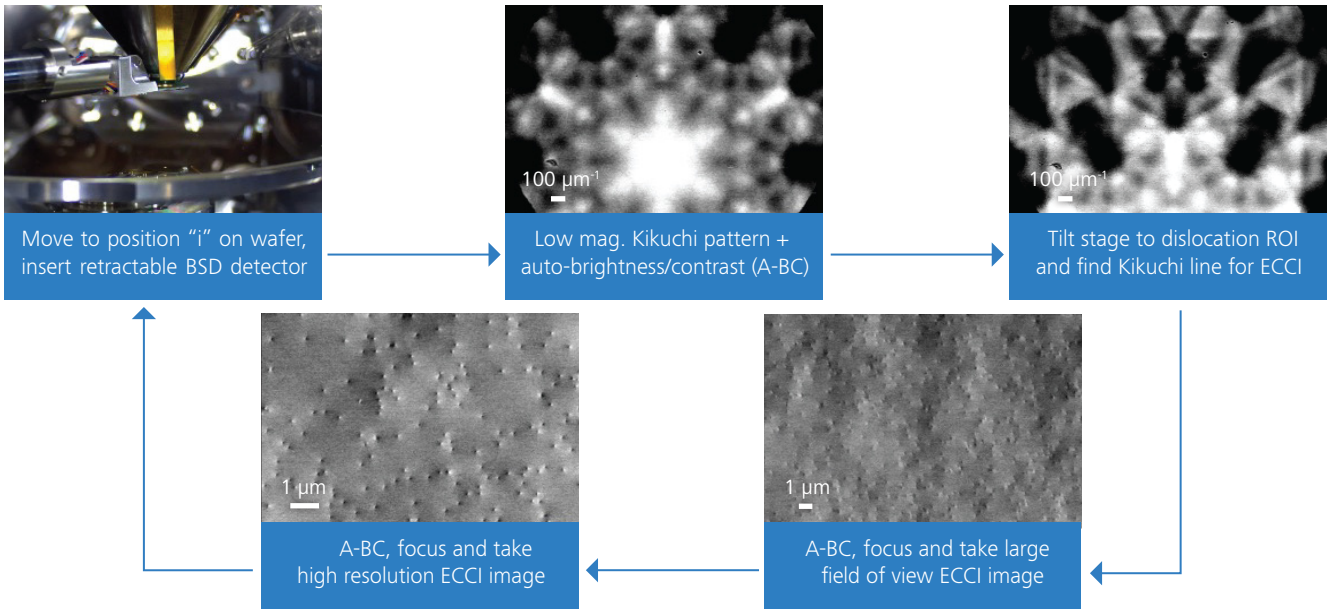
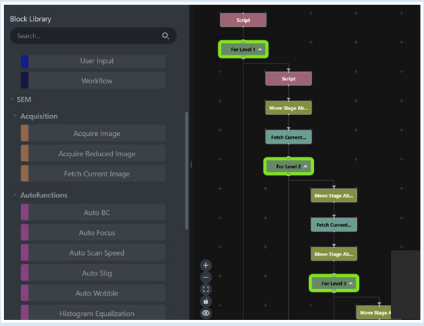


Figure 3: Automated non-destructive epi-defect screening with ECCI demonstrated on a 200 mm wafer.

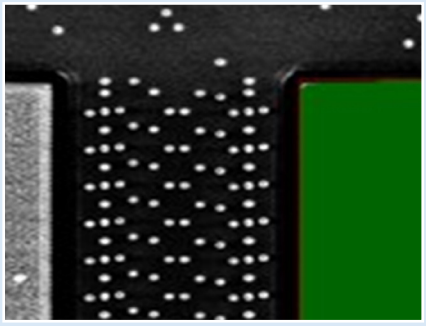
Market-unique features for your success.

Reclaim valuable hours and enhance accuracy as well as productivity with automation, enabling human experts to focus on higher-value analysis rather than routine microscope supervision. Clear your physical analysis backlog much faster, delivering critical insights to the fab more quickly and mitigating potential yield loss.

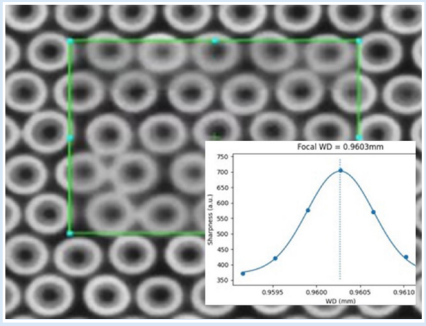
ZEISS Blockwise EM automation solution is currently available for ZEISS Sigma and GeminiSEM FE-SEM families.



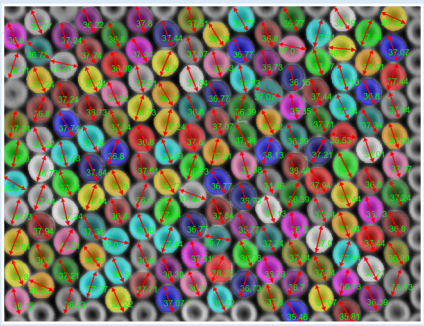
LEGO®-like modular automation
Engineers can construct EM workflows using drag-and-drop building blocks, eliminating the need for coding.



AI-based detection
Automates feature detection, classification, and defect identification – significantly enhancing accuracy and repeatability compared to time-consuming manual processes.



User-centric design and image optimizers
Visual programming defines deterministic repeatable recipes using automated settings to ensure consistent, high-quality images.



Advanced measurement tools
Automated and customizable measurement capabilities ensure precise and reliable correlation between data statistics and processing conditions.



Simple yet powerful toolkit
The drag-and-drop interface empowers users, while full control over microscope operations enhances functionality.



Exceptional customer support
Access to ZEISS product and applications experts in every step; collaborative recipe development and training on customizable workflows will help solving your unique challenges.

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