



ToolScan R360

The complete solution for toolmark experts.



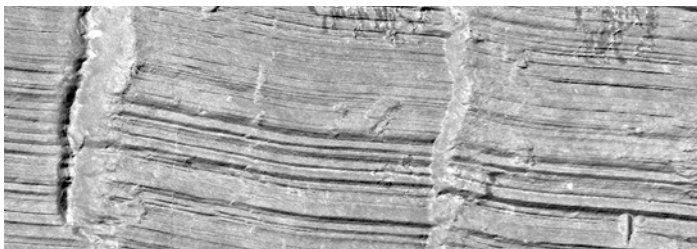
AUTOMATIC 3D SCANNING • MODERN SOFTWARE • EVIDENCE EXAMINATION
SEARCH • VIRTUAL COMPARISON MICROSCOPY



TOOLSCAN OVERVIEW

The ToolScan System by Laboratory Imaging offers a comprehensive solution for the forensic examination of tool marks. It is designed to provide live, real-time imaging and high-resolution, all-in-focus scanning of 2D and 3D images created from focus variation combined with photometric stereo. The key advantage of the ToolScan System is its advanced forensic software, LUCIA, which is continuously updated with new features for forensic analysis.

- 3D images with a resolution of 8340 PPI.
- 2.8 MP CMOS camera.
- Robust mechanical construction (samples up to 15 kg).
- Motorized stage range: 10 x 10 cm, focusing range: 10 cm.
- Rotary (360°) or flat version of the device.
- 8-segmented ring LED illuminator, laser autofocus.
- The device is fully controllable via software and a joystick.

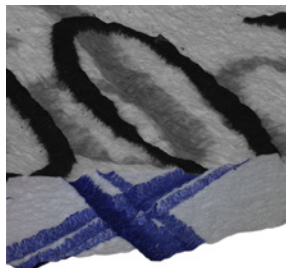


Detail of toolmarks on the surface of the cylinder lock.
Scanned area: 18 x 14 mm. Scan time: 1:18 min. File size: 136 MB

TOOLSCAN WITH COLOR IMAGING

A 5 MP color CMOS camera can be integrated into ToolScan to enable color surface visualization. This feature is particularly beneficial for applications such as:

- **Archaeology** – identify material differences and surface details with greater clarity.
- **Document Examination** – detect alterations, inks, and other important details.
- **Tool Mark Examination** – enhance analysis of tool marks with color differentiation.
- **Ballistics** – examine materials penetrated by projectiles in greater detail.



Document signatures (top).
Color camera capture (bottom).



A bullet captured by a color camera.

SCANNING OF TOOLS AND TOOLMARKS

With a broad range of accessories, ToolScan can digitize various types of samples:

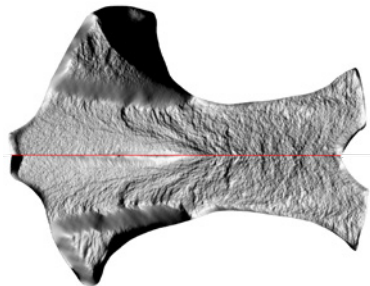
- Toolmarks – striations, imprints, cuts, casts, and physical matching.
- Tools and test samples – direct scanning of jaws, blades, cylinder locks, plier jaws, and test impressions in lead.
- Documents – signatures (line intersections).
- Archaeological samples – toolmarks on bones, ceramics, and other biological material.



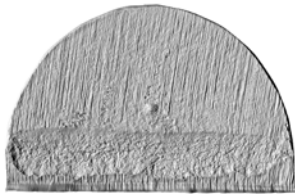
Striations, imprints on flat tools.



2D image of cut cable.



Comparison of parts of a broken drill.



Wire cut.



Coin scan.

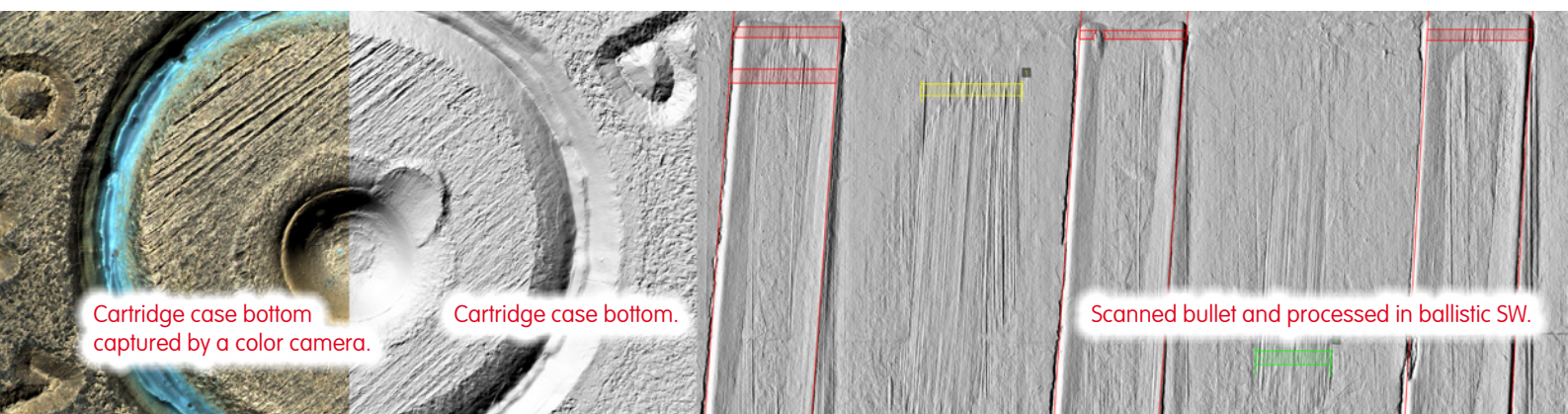


3D image of a bone showing detailed tool marks. Color camera.

TOOLSCAN FOR FIREARMS INVESTIGATION

ToolScan can be enhanced with ballistic analysis software. This allows the system to be used for ballistic examination, providing a versatile and effective alternative to the comparison microscope.

- Cartridge Case Holder – for one cartridge case or special 16-CC holder for batch scanning.
- Rotary Motor – enables fast, precise full-surface scanning of bullets, capturing detailed markings and characteristics.



Cartridge case bottom
captured by a color camera.

Cartridge case bottom.

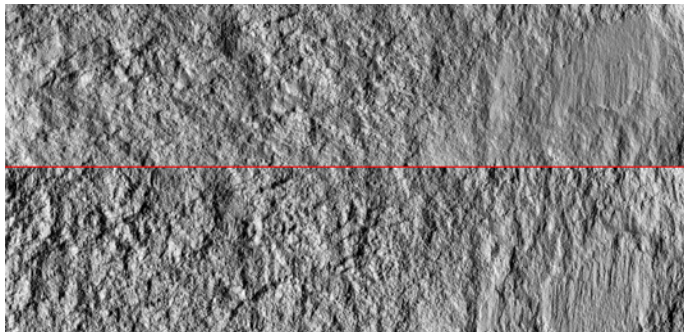
Scanned bullet and processed in ballistic SW.

VIRTUAL COMPARISON MICROSCOPY

The LUCIA Forensic software offers an intuitive workflow with multiple 2D, 3D, and texture-free comparison modes:

- Split-line (including curves and polylines),
- Canvas/Tiled view (up to 16 images simultaneously),
- Transparency,
- Region and more.

For pre-scanned images, users can adjust lighting angle, intensity, and position. Lighting can also be synchronized across images, mimicking a traditional comparison microscope. Users can capture multiple screenshots from overlapping images and perform live toolmark examinations in real time.

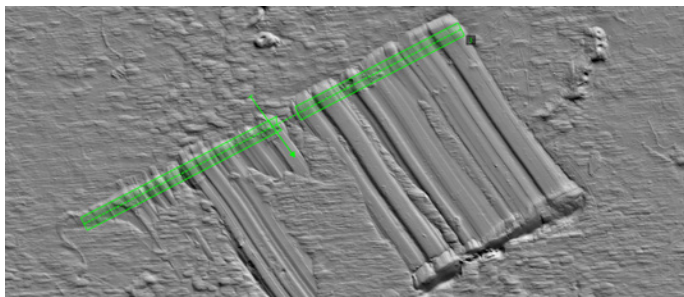


Splitting comparison of fraction areas.

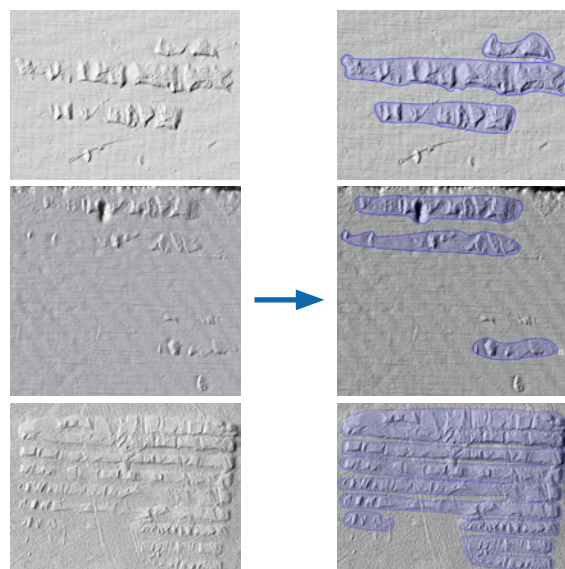
MARKING AND AUTOMATIC ALIGNMENT

Distinctive mechanoscopic features, such as striation marks, impression marks, and fracture area marks, can be identified and defined on digitized evidence.

Using advanced algorithms and 3D data from defined toolmark areas, the software automatically aligns images, allowing experts to quickly identify similarities and accelerate comparisons.

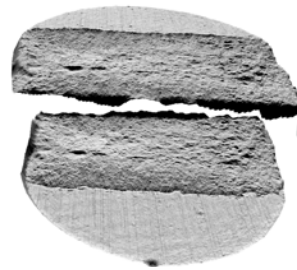


Marked striation.

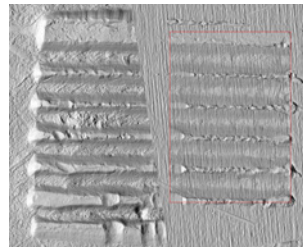


Original scanned images.

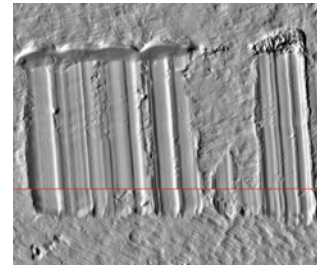
Defined toolmark areas.



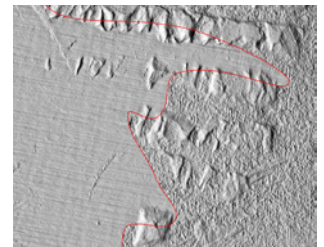
3D comparison mode Canvas of two fractures above each other.



Impression marks over each other using ROI with transparent comparison mode.



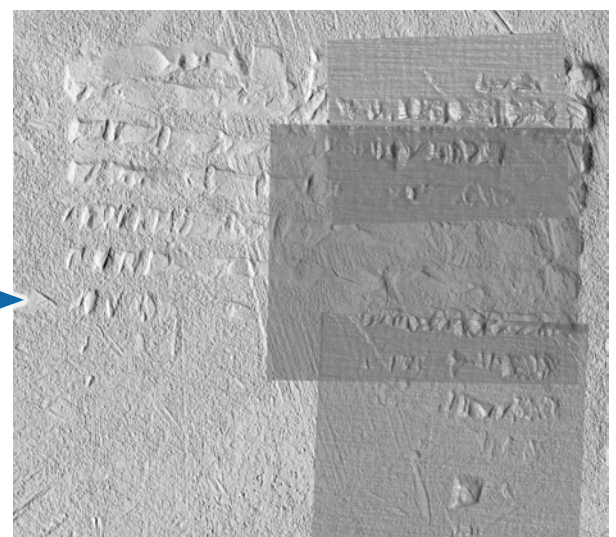
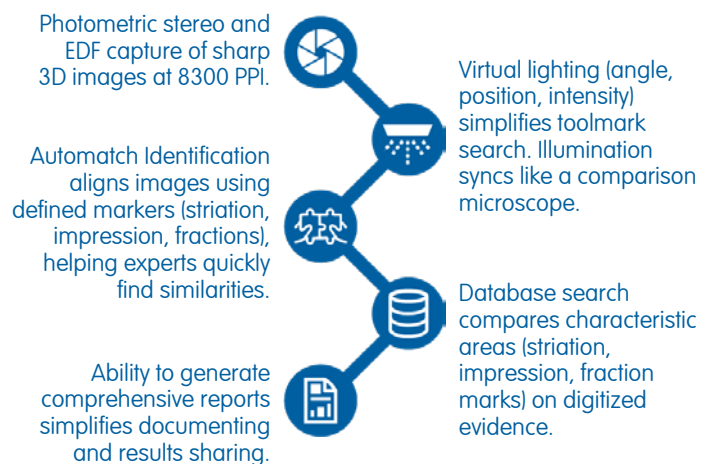
Splitting comparison of silicone castings.



Polyline comparison of two impression marks.

MODERN SOFTWARE

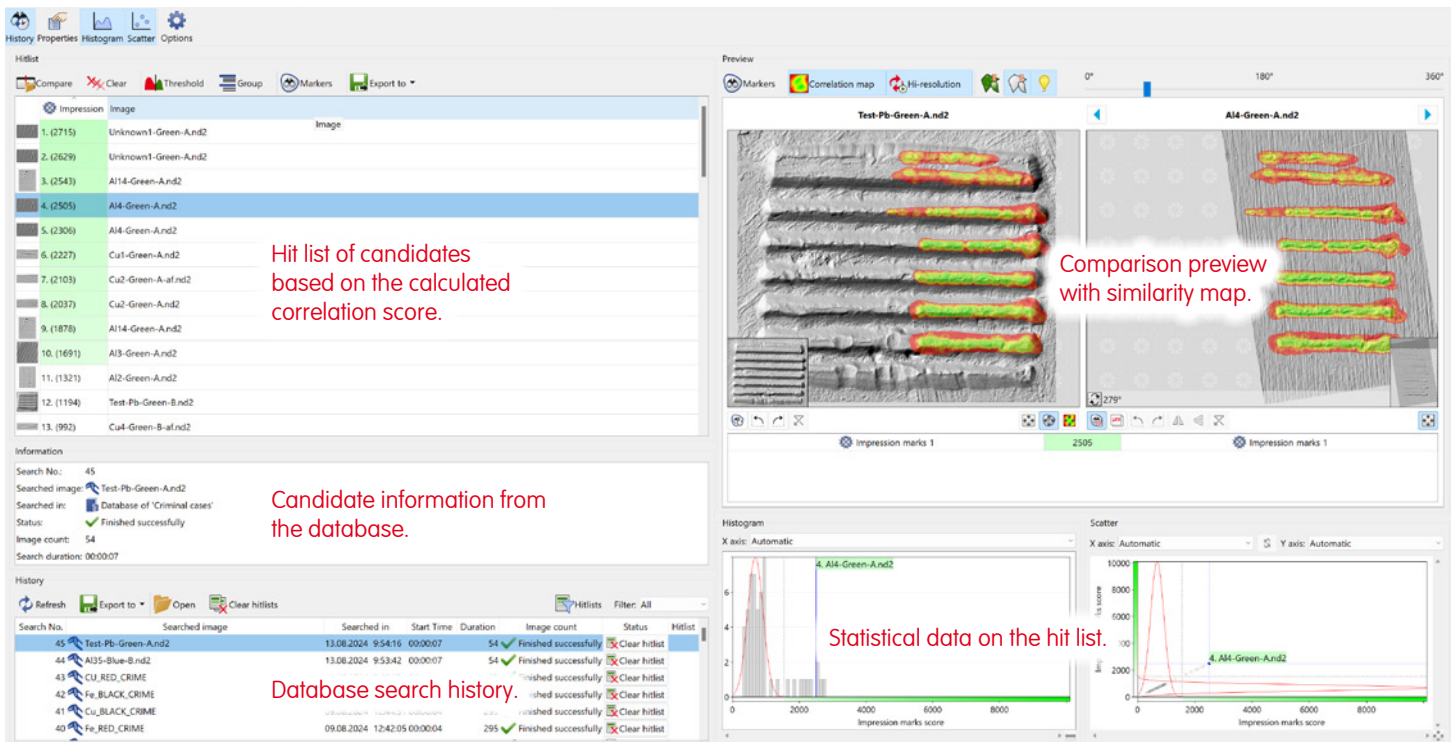
The LUCIA Forensic software is designed to guide you step by step through the entire process, from scanning and comparing to searching the database for matching details in the samples, and even generating reports.



After automatic **Match by impression marks** the software automatically aligns images – e.g. in the Canvas mode.

SEARCH

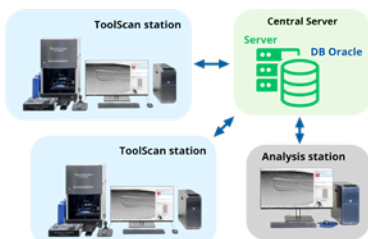
The LUCIA ToolScan software has its own implemented module for search in database or in folder structure on network drive or local disk which uses 3D data correlation to analyze characteristic areas of digitized evidence. This search module will provide the user with a hit list of potential matches based on the correlation score.



Search window of LUCIA ToolScan SW for the ToolScan device.

DATABASE

The ToolScan system offers a fully customizable structure that can be designed as a solution for small laboratories or scaled into a national system with a central database connected to multiple regional databases across the country. Built on an Oracle Database, ToolScan provides administrator tools to monitor system performance and access database history, enabling users to review audit information efficiently.



Centralized solution.

CUSTOMER SUPPORT SERVICES

Our forensic specialists offer a wide range of support options to meet your needs, including the following services:

- On-site installation.
- Technical support.
- Phone and e-mail support.
- Remote connection.
- Illustrative videos, manuals, and short guides.
- Comprehensive training in our own Training Facility.
- Regular onsite maintenance, including software updates and advanced training.



EASY TEAMWORK

Four Eyes Principle

The database enables experts to consult, collaborate, and review examination results with colleagues from other laboratories. Comparison snapshots enable quick reopening of all images involved in the comparison, preserving their exact positions and views as they were at the moment of saving.

Compatibility

Compatibility with other software is guaranteed by the ability to export and import X3P format images.

REFERENCES AND COMPANY

The ToolScan system is one of the most widely used devices for toolmarks experts with 140+ ToolScan devices sold worldwide.

Founded in 1991 in Prague, Laboratory Imaging s.r.o. has broad expertise in microscopy, image processing, and analysis. The company develops, produces high-quality laboratory systems for scientific, biomedical, forensic, and industrial imaging.

