www.qa-group.com

QUALITY ASSURANCE DOWN TO THE SMALLEST DETAIL.

That something special about Quality Analysis: in our organisation you will find the right experts and the right analysis methods for all materials and every requirement.

Our service areas:

- Industrial computed tomography
- Industrial metrology
- Technical cleanliness verification
- Materialography
- Chemical analytics

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MATERIALOGRAPHY

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WE LOOK DEEP INTO THE DETAIL.

Optimise processes, processes with informative analyses: Our microscopic and spectroscopic analyses help you to characterise materials, check production processes, prevent damage, find the causes if damage occurs and optimise processes in product development.

- Detailed, dependable analysis results thanks to many years of know-how
- Accredited test laboratory with more than 400 m²
- Highly modern, specialised analysis equipment: Zeiss, Renishaw, Bruker, Struers, Agilent, Netzsch
- Very small and large components in all materials

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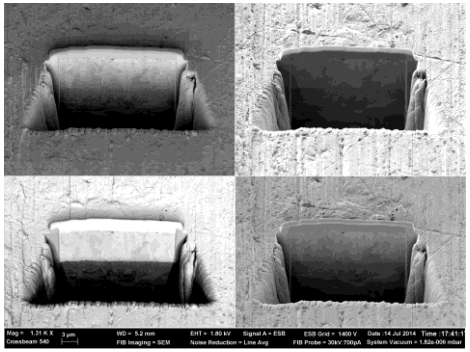
WHAT'S NEW?

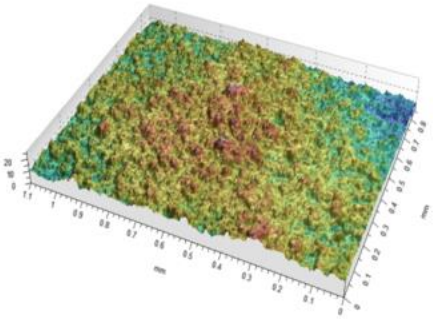
Entry into nanoanalytics

The **ZEISS Crossbeam 350** is a high-resolution scanning electron microscope (SEM) with a focused ion beam (Ga-FIB) and an integrated femtosecond laser. In this way we obtain insights into what is inside a sample and at the same time remove material locally in the smallest quantities using the ion beam to expose these cross-sections of the sample directly for the SEM.



Expansion of the microscopy spectrum

The confocal laser scanning microscope **LSM 900 MAT** from ZEISS is an ideal instrument for material analyses. Using this microscope we can combine light microscopic and confocal imaging. In this way we obtain precise, three-dimensional imaging and have expanded our range with topographic analyses of nanomaterials, metals, polymers and semiconductors.



Source: Carl Zeiss AG

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WHAT'S NEW?

High-contrast and detailed imaging of microcracks using fluorescence microscopy

Our new **ZEISS Stereo Discovery.V12 fluorescence stereomicroscope** enables us to visualize and evaluate microcrack patterns on plastic housings, such as connectors used in the electronics industry, or on printed circuit boards with high contrast effects.

The fluorescent coating (usually a slightly viscous, oily liquid) can be used directly on the component surface or only afterwards in the prepared section. It is absorbed into the crack and remains there without running.

This results in the following analysis possibilities:

- Detection of microcracks directly on the component surface (especially suitable for plastics)
- High-contrast imaging of insulating gels/masses of the semiconductor industry in prepared sections (often used for electronic components)
- Representation of micro-cracks and micro-crack paths in the prepared microsection

Quelle: Carl Zeiss AG

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WHAT'S NEW?

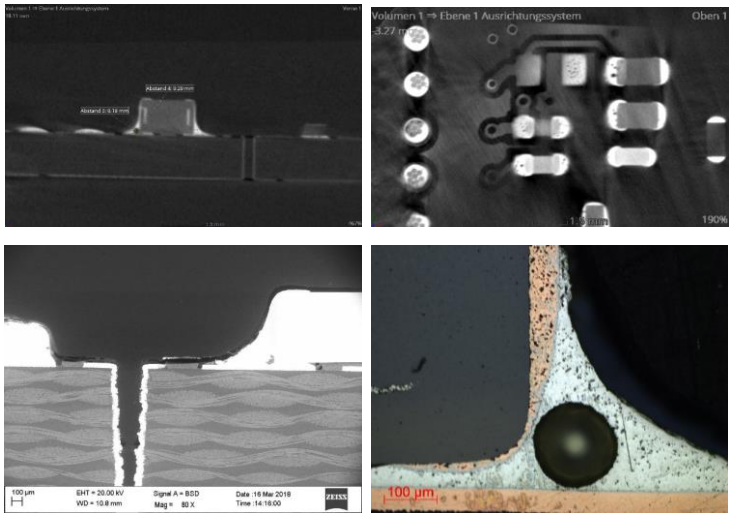
Stress Testing & Analytics

Detection and analysis of material change and component behavior through targeted stress simulations, such as.

- Thermal stress: thermal shock, climate change or temperature change
- Stressing under defined environmental conditions (environmental simulation)
- Corrosion change test
- Salt spray test

Through the targeted application of component stress simulations, we can detect and analyse changes in the shape of components or defect patterns such as cracks, fractures, inclusions or assembly conditions in downstream analysis. We offer a **wide range of non-destructive and destructive analysis options** for this purpose.

Especially for electronic components, such as printed circuit boards, but also plastic or ceramic components, the comprehensive analysis offers a better understanding of the damage processes and the damage behavior on the component.



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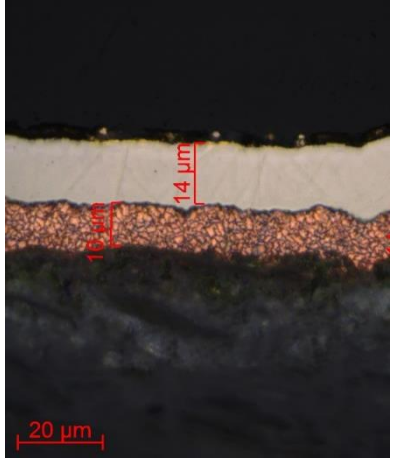
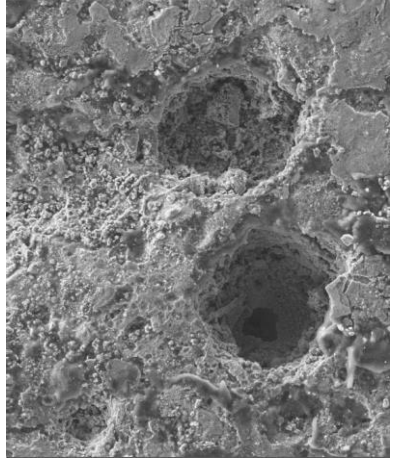
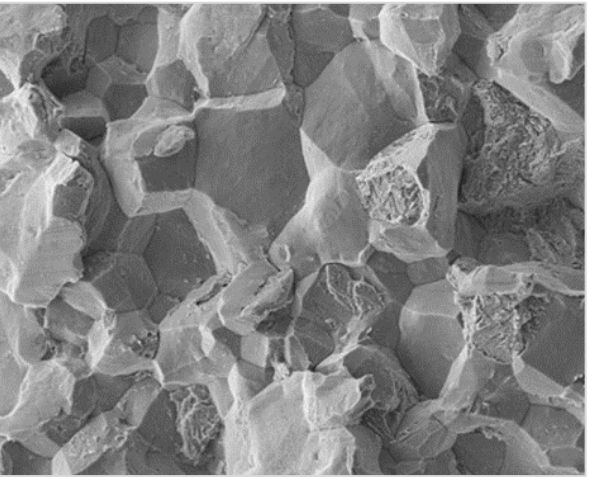




METALLOGRAPHY.



Destructive material testing for quantitative and qualitative analysis of material characteristics for metallic materials

- Metallographic sample preparation
- Testing of soldered joints and welded joints
- Microstructure analysis
- Layer thickness measurement
- Scanning electron microscopy
- Hardness testing
- Spark emission spectroscopy (OES)

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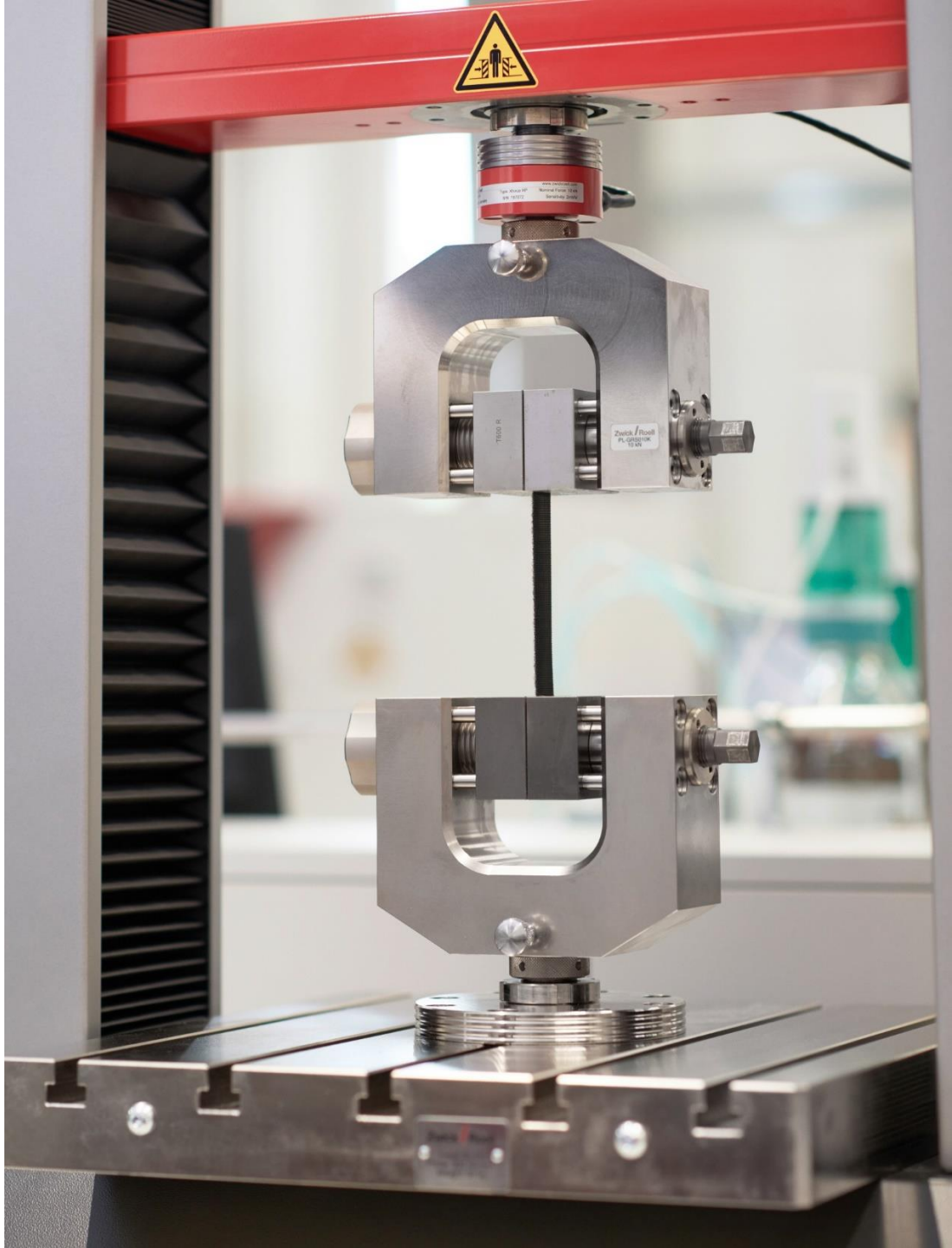
TENSILE- AND BENDING TEST.

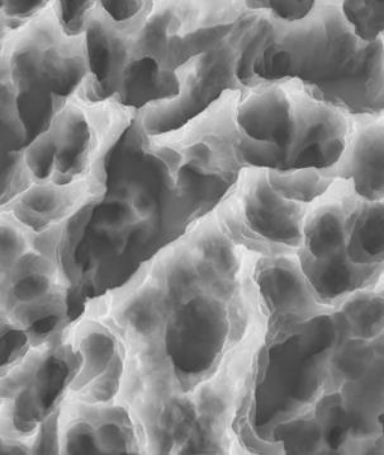
Perform standardized tensile, compression, bending and shear tests on materials and components, such as.

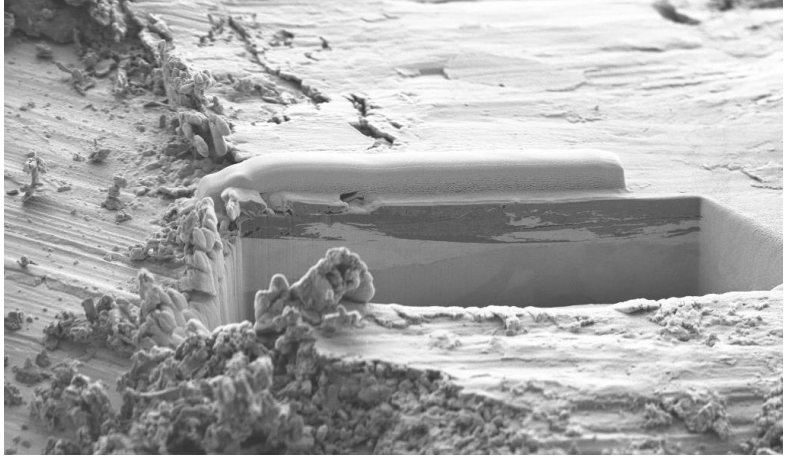
- Press-in and press-out tests on components and parts on printed circuit boards
- Bending tests on solder joints for complex interfaces
- Control of joining and pressing processes on precision engineering components
- Shear tests on bonded joints and/or jelly rolls (wound batteries)

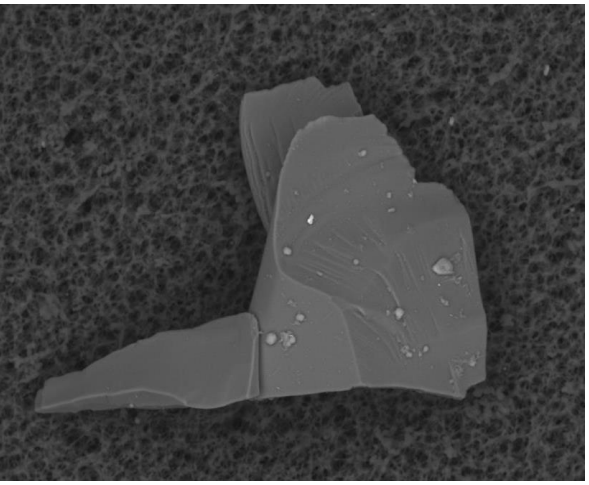
Analysis equipment:

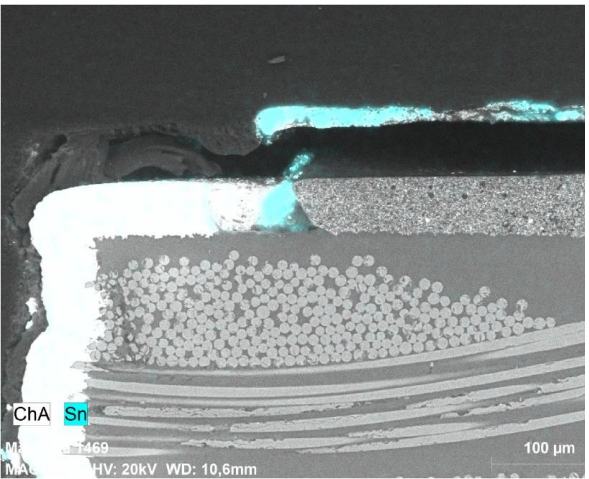
ZwickRoell ProLine











SCANNING-ELECTRON-MICROSKOPY.

High-resolution depiction and analysis of surfaces and structures

- Imaging of the topography of various materials and components
- Depth analysis
- Depiction of material contrasts
- Determination of the chemical composition (EDX analysis) of surfaces and coatings
- Fully automatic particle analysis using Smart PI

Analysis equipment:
ZEISS EVO MA 15, MA 25, Supra 40VP, Crossbeam 350

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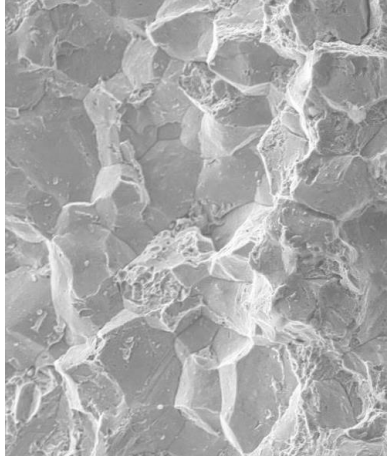
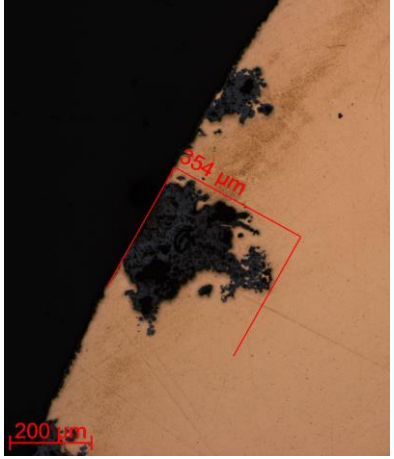
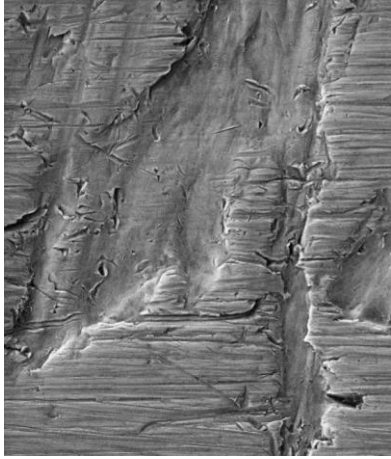
DAMAGE-ANALYSIS.

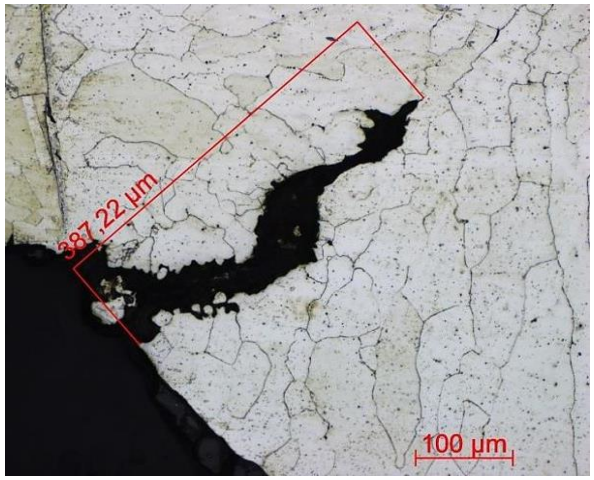


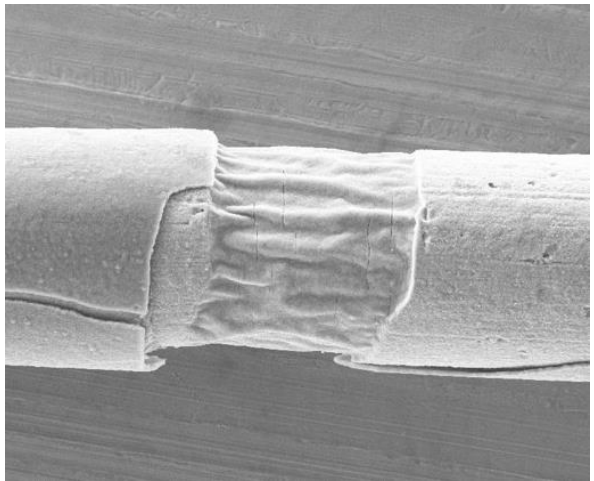




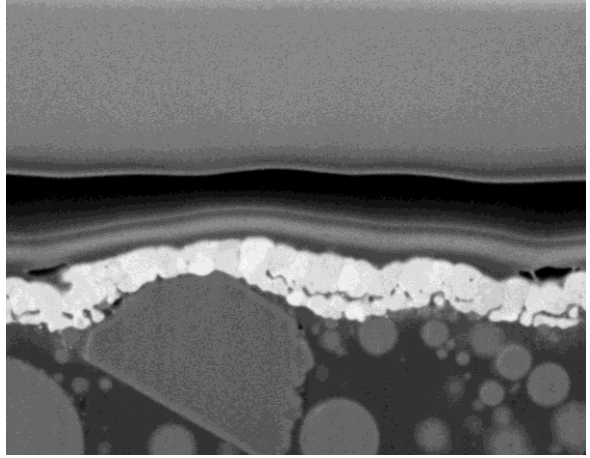
Systematic damage analysis on statically and dynamically loaded components

- Fracture surface analysis
- Crack analysis
- Analysis of corrosion behaviour
- Checks on welding defects
- Wear analysis (tribology)





<u>Analysis methods:</u>
Sample preparation, light and scanning electron microscopy, hardness testing, OES, and much more



FIB-SEM-MICROSKOPY.

3D imaging with preparation on nano-scale using FIB-SEM microscopy

- Target preparation of thermally sensitive coatings without the application of heat (cross-section)
- Analysis of coatings and coating systems
- Analysis of flaws, e.g. cracks or deposits of foreign material
- Analysis of microstructures, deposits at the particle boundaries and intermetallic phases
- Analysis of electronic assemblies

Analysesystem:
ZEISS Crossbeam 350

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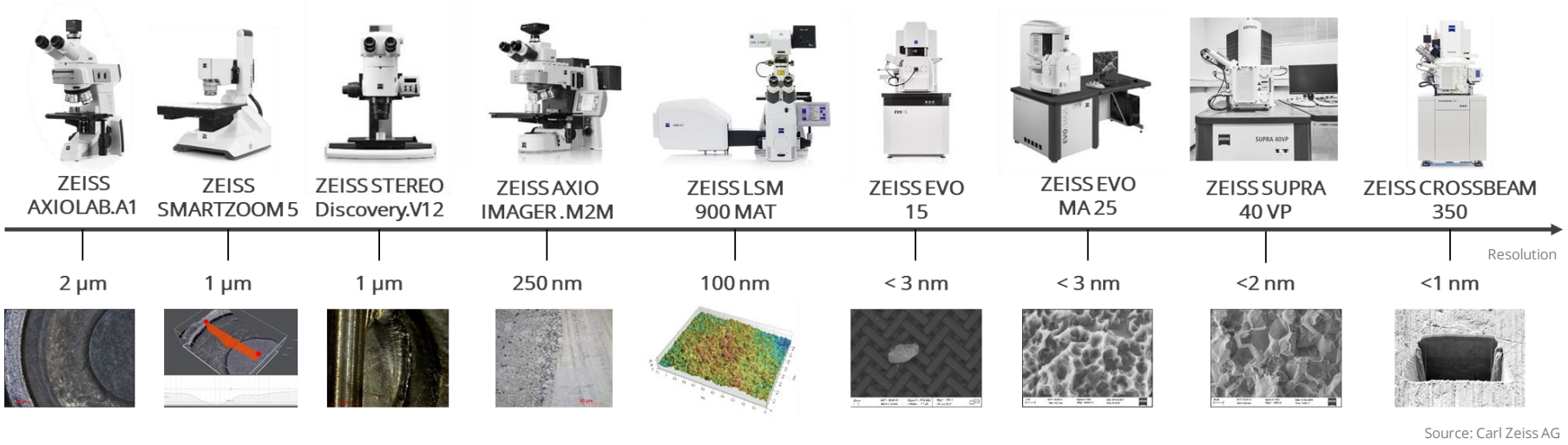
TECHNICAL EQUIPMENT.

Materialography

Versatile light, laser and electron microscope for comprehensive material analyses, e.g. for the analysis of layer thicknesses or weld seams, microstructure analyses or for systematic damage analysis.



Source: Carl Zeiss AG

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STANDARDISED TEST METHODS. ACCLAIMED QUALITY ASSURANCE.

Accredited test laboratory in accordance with DIN EN ISO/IEC 17025:2018

Our accreditation means for you one thing above all else: certainty. You can rely on high standards, excellent services and guaranteed quality standards. As your partner, we accompany you during product development, innovations and safeguard product quality together with you.

Advantages of our accreditation:

- Impartiality and confidentiality
- International validity (ILAC)
- Dependability due to conformity assessment
- Reproducibility and comparability
- Standardised measurement and analysis methods
- Highest requirements on the technical standard
- Monitoring of the management system and the competence of the specialist personnel

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-11108-01-00

* Refer to our accreditation certificate for the scope of our accreditation. You will find this certificate on our homepage.

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QUALITY ASSURANCE IN NUERTINGEN AND SWITZERLAND.

It is possible to implement your projects worldwide from our sites.

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