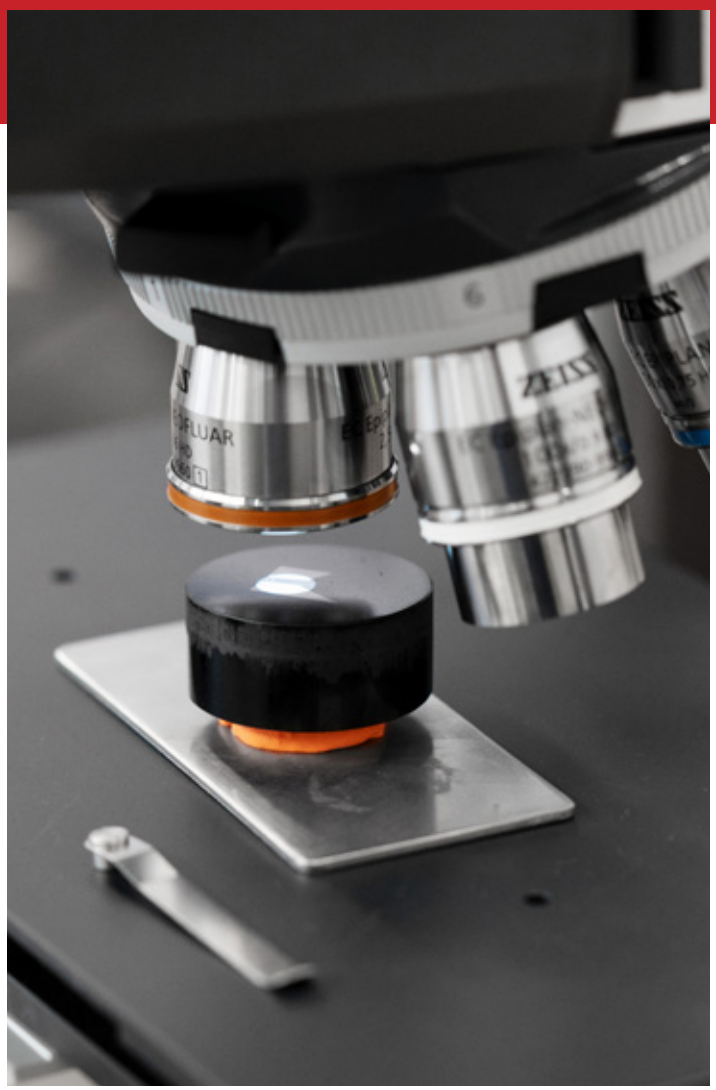
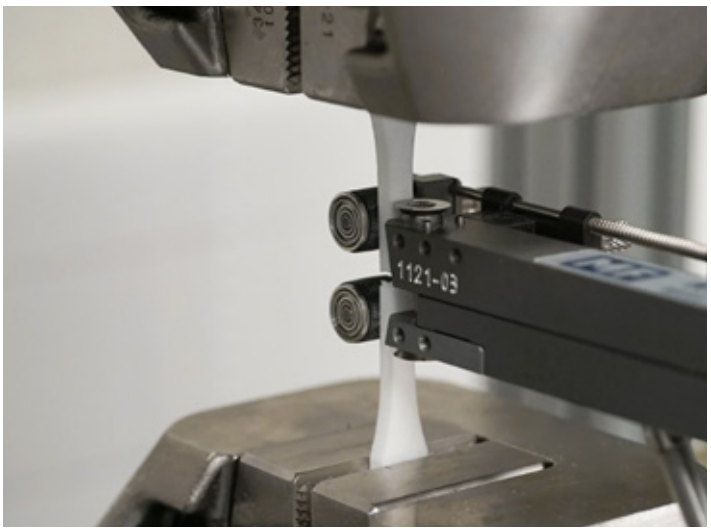
STIWA

MATERIALS TESTING





From test methods selection to results interpretation.

STIWA Process & Technology

Range of services

STIWA Materials Testing

As part of STIWA Process & Technology, our Materials Engineering department offers a wide range of services in the field of materials testing and analysis.

Whether evaluating a heat treatment process, assisting in failure investigation or planning and performing component samplings – STIWA Materials Engineering is your capable partner for materials testing.

Our strength lies in our many years of experience with the broad range of materials used in special machine construction – be it copper, plastic, or cemented carbide.
We carry out both individual tests as well as extensive test series, precisely tailored to your testing requirements. Feel free to contact us anytime.

Laser weld seam, nickel plated steel / copper

Materialography

Materialography is a method of materials testing yielding a wide array of useful information. It allows the interpretation of microstructural features, e.g. in the surface area of components, in damaged zones, or welded joints. Ultimately, data derived from materialography can be used to relate the microstructure of a material to its macroscopic properties. We offer materialographic analysis of numerous metallic and non-metallic materials.

- Micro / macro mechanical sample preparation
- Optical weld joint analysis
- Optical microstructure analysis
- Coating thickness measurement
- Analysis of surface zones

Static tensile test on a 3D-printed sample

Mechanical Testing

By means of mechanical testing, many important material properties such as hardness, strength, or ductility can be determined. The obtained testing results can be used to predict component behaviour during operation. In-house manufacturing of fixtures for tensile tests on complex geometries is possible.

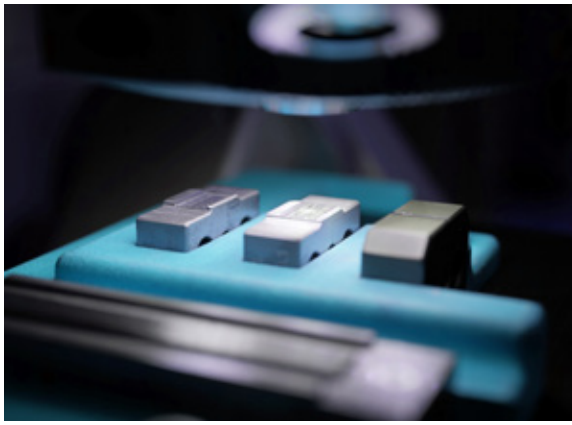
- Vickers hardness test, DIN EN ISO 6507
- Determination of hardness depths CHD, NHD, SHD, DIN EN ISO 18203
- Rockwell hardness test A, C, D, DIN EN ISO 6508
- Static tensile- / compressive test, uniaxial, ISO 6892-1, variable time-force-profiles possible, max. 50kN

Surface analysis

Surface Analysis

Component surfaces serve as interface to the system environment and load collective. Their condition is of vital importance and directly affects the service life of dynamically loaded parts, the adhesive strength of coatings, as well as the wear and corrosion behaviour of components. At STIWA, quantitative / qualitative optical surface analysis and non-destructive coating thickness measurement is possible.

- Analysis of surface topographies
- Optical 3D measurement of geometric features down to µm-scale
- Optical surface roughness measurement
- Non-destructive coating thickness measurement, DIN EN ISO 2178, 236



Measurement of wear marks

Failure Analysis

The investigation of technical failures is one of our core competencies and part of our comprehensive service range. We work closely with our customers through each step from reviewing the component history to analysis procedure. Once the cause of damage has been identified, we provide practical and effective remedial action recommendations.

- Obtaining and documenting component history
- Thorough documentation of all components in as-received condition
- Careful and precise sample cut-out
- Selection and use of suitable analysis methods
- Consultation with external partners as required

Fracture surface of a broken drive shaft, structural steel

AUTOMATION **MANUFACTURING** **SOFTWARE**

Innovative solutions from a single source

The unique combination of **state-of-the-art automation, efficient high-performance production technologies and powerful software tools enables STIWA** to strengthen the market position of its customers worldwide. We incorporate our comprehensive know-how into the development of new products, from product idea to series production. In this way, we set new standards **in the field of fully automated production** every day.

1972	100%	> 340 Mio. €	> 2.500
founded	family owned	turnover	employees

contact

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