Are you familiar with our industrial-grade accredited inspection services?

- Accredited laboratory in line with DIN EN ISO / IEC 17025, to qualify and validate new non-destructive testing (NDT) processes for industrial applications
- Accelerated time-to-market and opportunity for qualified, norm-compliant deployment in industrial applications as well as for complete new in-house developments or custom adaptation of innovative NDT technologies, even in fields where norms have not been established
- Certification of the corresponding quality management system in accordance with DIN EN ISO 9001

Contact

Fraunhofer Institute for Nondestructive Testing IZFP

Campus E3 1
66123 Saarbrücken

+49 681 9302 0

info@izfp.fraunhofer.de
www.izfp.fraunhofer.de
Given the need to conserve resources and increase efficiency while simultaneously improving functional characteristics, the development of lightweight systems has gained enormous importance. This applies not only to “conventional” lightweight construction industries such as aerospace, but also to the automotive industry and the entire field of renewable energy.

Lightweight construction is possible only if nondestructive testing (NDT) processes are a consistent and integral part of the product and process development chain.

Lightweight construction is possible only if nondestructive testing (NDT) processes are a consistent and integral part of the product and process development chain.

For this reason, methods and systems for testing lightweight structures represent an important focus of the Fraunhofer IZFP R&D activities, which are supplemented by research into targeted life cycle management.

We thus rely on a holistic approach that takes into account the entire value chain, from development of the materials, components and production processes, to operation, service and recycling.

**Lightweight-specific adaptations, new technologies and developments**

**Ultrasound**
- Established processes in a variety of applications such as the standard for approving safety-relevant aerospace technologies
- Sampling phased array-ultrasound tomography: Using synthetic reconstruction algorithms, fiber-reinforced components can be inspected for defects by means of ultrasound-based 3D imaging. The result is significantly better resolution and very high testing speeds.

**Active thermography**
- Imaging system for the detection of near-surface flaws and defects, such as delaminations in FRP components

**Micromagnetics**
- 3MA (micromagnetic, multiparameter microstructure and stress analysis) for characterizing new high-performance steels and for the nondestructive determination of parameters such as yield strength, tensile strength and hardness.

**Other processes and methods**
- Multifrequency eddy current system
- Microwave
- Shearography (speckle interferometry)

In addition to its focus on certifying technology, Fraunhofer IZFP offers a series of courses designed to educate technical specialists and managers and to sensitize them to the area of lightweight technology quality assurance.

Close cooperation with the Chair for Lightweight Systems at the University of Saarland gives Fraunhofer IZFP in-depth insights into basic research involving the entire lightweight construction value chain, from initial design to prototype applications.

In order to deploy reliable nondestructive testing technologies in industrial applications, they must be certified. Fraunhofer IZFP’s flexibly accredited test laboratory is fully equipped to validate test methods and applications to determine if the underlying processes and corresponding instruments are suitable for carrying out defined inspection tasks.