

Fraunhofer Institute for Nondestructive Testing IZFP
 Campus E3 1
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Description of the flexible scope of accreditation at Fraunhofer IZFP

The institute has the externally confirmed competence to perform tests in the following fields:

Manual and mechanised non-destructive testing (surface and volume testing) regarding quality features, inhomogeneities, physical characterization of structural differences, layer thicknesses, magnetic and electrical properties on materials and components of plant and mechanical engineering and traffic engineering made of metals, ceramics, plastics, carbon-fibre- and metal-fibre-reinforced materials as well as composites, building materials and organic materials.

In the field of ultrasonic testing (UT), the scope of accreditation in detail covers manual and mechanised surface and volume testing for defects in components of plant and mechanical engineering and traffic engineering made of metal, ceramics, plastics, carbon-fibre reinforced materials and composite materials > 0 to 700 mm wall thickness in the temperature range from -20 °C to 200 °C.

Fraunhofer IZFP holds a flexible accreditation of Category II in the field of UT. Within the scope of accreditation, the institute is thus permitted to modify and further develop test methods within the test area defined here. The tests are essentially based on the following norms and standards, without being limited to them:

Process description No. 0005-4 2014-10	Manual ultrasonic testing
Process description No. 0011-4 2014-10	Automated ultrasonic testing
Process description No. 0022-2 2014-11	Signal processing for automated ultrasonic testing (methods »ALOK« and »SAFT«)
Process description No. 0023-2 2014-10	Ultrasonic phased-array testing of welds, cast iron and rolled parts and forgings
DIN EN 10160 1999-09	Ultrasonic testing of steel flat product of thickness equal to or greater than 6 mm (reflection method)
DIN EN 10228-3 2016-10	Non-destructive testing of steel forgings - Part 3: Ultrasonic testing of ferritic or martensitic steel forgings
DIN EN ISO 13588 2019-07	Non-destructive testing of welds - Ultrasonic testing - Use of automated phased array technology
DIN EN ISO 16810 2014-07	Non-destructive testing - Ultrasonic testing - General principles (see: Chapter 9 – Testing)
DIN EN ISO 16826 2014-06	Non-destructive testing - Ultrasonic testing - Examination for discontinuities perpendicular to the surface
DIN EN ISO 16827 2014-06	Non-destructive testing - Ultrasonic testing - Characterization and sizing of discontinuities

DIN EN ISO 17640 2019-02	Non-destructive testing of welds - Ultrasonic testing - Techniques, testing levels, and assessment (see: Chapter 10 – Testing of base material)
Stahl-Eisen-Prüfblatt (SEP) 1927 2010-08	Ultrasonic immersion testing method of determining the macroscopic cleanliness rate of rolled or forged steel bars
AD 2000-Merkblatt HP 5/3 2020-12	Manufacture and testing of joints - Non-destructive testing of welded joints (only UT)
Test instruction 9703-2 2023-02	Mechanized ultrasonic testing on combustion chamber with nozzle for 400 N engine or on 400 N engine
Test instruction 1304_3 2023-03	Mechanized ultrasonic testing on steel and titanium impellers from the bore

In the field of penetrant testing (PT), the scope of accreditation in detail covers the manual surface crack testing of components of plant and mechanical engineering and traffic engineering made of metal, ceramics and plastics in the temperature range from 0 °C to 80 °C.

Fraunhofer IZFP holds a flexible accreditation of Category III in the field of PT. This includes the application of standardized or equivalent test methods with different output statuses. The tests are essentially based on the following norms and standards, without being limited to them:

Process description No. 001-3 2016-11	Penetrant testing
DIN EN ISO 3452-1 2022-02	Non-destructive testing - Penetrant testing - Part 1: General principles
DIN EN 10228-2 2016-10	Non-destructive testing of steel forgings - Part 2: Penetrant testing
Test instruction 9701-5 2023-02	Penetrant testing on combustion chamber with nozzle for 400 N engine or on 400 N engine

In the field of radiographic testing (RT), the scope of accreditation in detail covers tests for defects and for density distributions of components with the dimensions 1.5 m length, 0.6 m diameter and wall thicknesses up to 15 mm steel or equivalent beam attenuation made of metal, plastic, polymer, ceramic or fibre-reinforced materials at room temperature up to a limit energy $E_G \leq 220$ keV.

Fraunhofer IZFP holds a flexible accreditation of Category III in the field of RT. This includes the application of standardized or equivalent test methods with different output statuses. The tests are essentially based on the following norms and standards, without being limited to them:

DIN EN ISO 17636-2 2023-05	Non-destructive testing of welds - Radiographic testing - Part 2: X- and gamma-ray techniques with digital detectors
Process description No. 0015-8 2018-05	Microradioscopy

Process description No. 0018-7 2018-10	Qualitative computer-tomography
Test instruction 9702-7 2023-02	Radiographic testing on combustion chamber with nozzle for 400 N engine or on 400 N engine

The scope of accreditation also includes the characterization and verification of equipment for non-destructive testing.

Fraunhofer IZFP holds a flexible Category III accreditation in this field. This includes the application of standardized or equivalent test methods with different output statuses. The tests are essentially based on the following norms and standards, without being limited to them:

DIN EN ISO 22232-1 2021-09	Non-destructive testing - Characterization and verification of ultrasonic test equipment - Part 1: Instruments
DIN EN ISO 15548-1 2014-03	Non-destructive testing - Equipment for eddy current examination - Part 1: Instrument characteristics and verification
DIN EN ISO 18563-1 2022-12	Non-destructive testing - Characterization and verification of ultrasonic phased array equipment - Part 1: Instruments

The flexible accreditation of Fraunhofer IZFP has the following DAkkS procedure number:
D-PL-111-40-09

As at 15.05.2023