

## Non-destructive testing and fractography

- Infrared and thermal testing
- Mid-infrared spectroscopy
- Macroscopic and microscopic analysis
- 3D surface analysis
- Scanning Electron Microscopy (SEM)

## Fiber composite laboratory

- Hand lay-up and vacuum pressing
- Vacuum infusion
- Prepreg processing
- Hydraulic press
- Laboratory filament winding system
- Tempering oven
- Laboratory reactor
- Composite CNC milling machine
- Strain gauge application

## Adhesive laboratory

- Tempering oven
- Ultrasonic bath
- Plasma pretreatment
- Flame impingement
- Flame pyrolysis
- Bating
- Application tests under different climatic conditions

## Services

- Quality control
- Specimen preparation
- Material qualification
- Climate simulation
- Test method development
- Consultancy

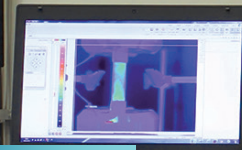
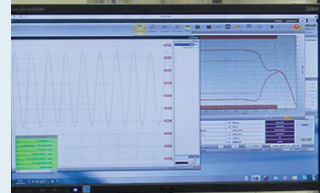


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Fraunhofer Institute for Large Structures in Production Engineering IGP



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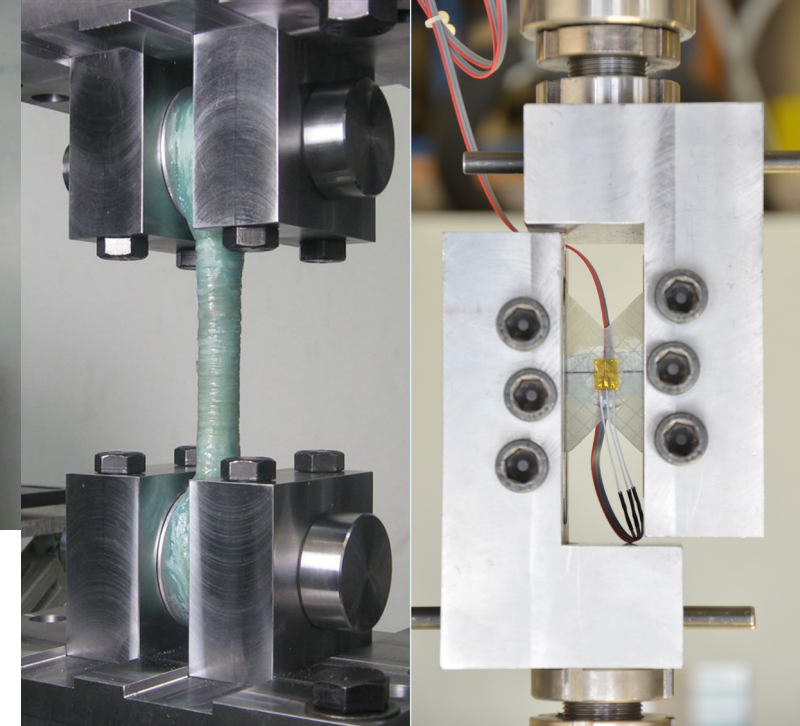
Photo: Fraunhofer IGP

## Accredited Test Laboratory

Testing of fiber  
composites,  
adhesives and joints



Photos: Fraunhofer IGP



# Testing of fiber composites, adhesives and joints

## Accredited Test Laboratory

The test laboratory of the Fraunhofer IGP has more than 15 years of experience in testing various materials. There is an accreditation by the German accreditation body DAkkS in accordance with DIN EN ISO/IEC 17025:2018 for a wide range of standards. These include, among others

- Fiber composites,
- Plastics,
- Sandwich materials,
- Adhesives and
- Adhesive joints.

The Fraunhofer IGP also develops new test methods in close cooperation with their customers. Instrumented component and part testing of large structures serve sectors such as wind energy, shipbuilding, or construction.

## Mechanical testing

- Quasi-static testing from -80 to +250°C
- Tensile testing
- Compressive testing
- Flexure testing
- Shear testing
- Fracture toughness testing (GIC, GIIC)
- Tension torsion testing
- Peel testing
- Creep testing
- Impact testing
- Fatigue testing

## Thermal testing

- Dynamic Mechanical Analysis (DMA)
- Differential Scanning Calorimetry (DSC)

## Physical testing

- Density
- Fiber and resin mass contents
- Fiber, resin and void volume contents
- Contact angle measurement
- Rheology

## Test equipment

- Static test machines (up to 1000 kN)
- Temperature chamber for quasi-static testing (-80 to +250 °C)
- Dynamic test machines (up to 2000 kN)
- High frequency pulsators (up to 100 kN)
- Tension torsion machine (up to 10 kN/100 Nm)
- Dynamic 4-point bending test station (up to 30 kN)
- Low temperature cooling system (up to -180°C)
- Strain measurement with
  - contact extensometers
  - optical extensometers
  - strain gauges
  - fiber-optic sensors
- Digital Image Correlation (DIC)
- Impact tester (up to 405 J)
- Nanoindenter (0,05 mN to 20 N)
- Climatic test cabinets (-70 to +180°C, 10 to 98% RH)
- Climatic chamber (32 m<sup>2</sup>, -50 to +60°C, 10 to 95% RH)
- Salt spray cabinets
- Accelerated weathering tester