MATERIAL TESTING

PLASTICS AND COMPOSITES

We are the partner you can contact when it comes to national and international testing requirements, whether you are dealing with materials, components or entire structures. Our engineers look forward to help you run your testing programs and to standardise and certify materials.
In the case of fibre-reinforced plastics, we test materials and prepare samples and laminates for you. In addition to this, IMA Dresden has extensive experience in the fields of adhesive technology, laminate design and material approval. Benefit from our comprehensive knowledge on preparing and running material tests, including not only static, cyclic and dynamic testing but also creep testing. Furthermore, we are at your service to answer any questions you may have about choosing and planning a test method and, of course, evaluating the results.

LAMINATE & SPECIMEN MANUFACTURING

Our labs offers a variety of ways to manufacture laminates for testing using rovings, semi-finished textile products and resin systems. Make the most of our experience with producing laminates using vacuum infusion, RTM, thermoplastic processing and filament winding.

We use the test laminates to prepare high-quality test samples in line with national and international testing standards.

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**LAMINATE MANUFACTURING**
- Vacuum Infusion
- Resin Transfer Moulding (RTM)
- Prepreg
- Thermoplastics
- Filament Winding
- Yarn Impregnation

**SPECIMEN MANUFACTURING**
- High Speed Cutting
- Drilling
- CNC Milling
- Tabbing
- Waterjet Cutting

**INSTRUMENTATION & QUALITY ASSURANCE**
- 3D-Coordinate Measurement of Specimen Tolerances
- Strain Gauge Application
- Crack Gauge Application
PHYSICAL AND THERMAL TESTING

Our testing laboratories determine the test materials’ specific physical and thermal properties. Our services cover a wide range, starting with fibre content testing and extending as far as determining the glass transition temperature or performing sample conditioning.

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STATIC MATERIAL TESTING

We carry out a wide variety of standard tests to characterise fibre-reinforced materials. We look forward to advise you on testing standards which apply to your material and the parameters which need to be determined. In principle, we are able to carry out accredited tests in line with all national and international standards, either in a standard atmosphere or at higher or lower temperatures.

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FATIGUE MATERIAL TESTING

The cyclic testing methods require a high degree of expertise, as the varied properties of this group of materials need to be taken into account during testing. Moreover, there is still a lack of recognised standards in this field of testing. Our experts will be glad to carry out various types of tests for you.

FATIGUE TESTING ON PLASTICS AND COMPOSITES

- Pulsating and Alternating Loading
- Load Range: 0.5 N – 2 MN
- Load, Deflection or Strain Control
- Strain and Temperature Measurement
- In-situ Crack Documentation (optical)
- Evaluation of S-N-curves

FATIGUE TESTING ON PLASTICS AND COMPOSITES UNDER TEMPERATURE AND CLIMATE CONDITIONS

- Low Temperature: -60 °C
- High Temperature: +180 °C
- Hot-Wet Conditions: max. 85 °C and 85 % RH

FATIGUE SPECIMEN GEOMETRIES AND METHODS

- Special Double Side Waisted Geometry for UD Testing (IMA-UDFA, IMA-up-UDFA)
- G1c, G2c Testing
- Anti-Buckling Devices for Compression Loading
- Geometries accepted by DNV GL
- Components and Sub-Structures (i.e. Rotor Blade Root Joints)

MATERIAL CREEP TESTING

Components made of fibre-reinforced plastics need to withstand loads safely over the long term. To achieve this, information is needed about the material to determine how the component behaves when exposed to a static load over a long period. We carry out these long-term creep tests for various types of stress, taking into account the effect of different in temperature and media conditions.

CREEP TESTING ON PLASTICS AND COMPOSITES

- Creep Tests (Tension, Compression, Shear)
- Long-Term Rupture Test
- Load range: 0.1 N – 20 kN
- Extrapolation

CREEP TESTING ON PLASTICS AND COMPOSITES UNDER TEMPERATURE AND MEDIA CONDITIONS

- Creep Testing under Temperature (-30°C to 150°C)
- Creep Testing in Aggressive Fluids or under Liquid Immersion
- Combined Creep Loading (Temperature and Fluids)
PUTTING THE WORLD TO THE TEST

IMA Materialforschung und Anwendungstechnik GmbH (IMA Dresden) is an internationally operating company for engineering services and scientific-technical consulting around qualification, validation and monitoring of materials, components and products. Located between research and industry, we will accompany you, if desired, along the entire development of a product with comprehensive engineering competence. As we work in many sectors involving traffic engineering, plastics and metal industry and others, we can offer you a head-start with our comprehensive know-how.

We work according to German, international standards and we are certified according to DIN EN 9100 and ISO 14001. Nearly all relevant test laboratories are accredited according to DIN EN ISO/IEC 17025. The test labs have most modern test-, measure- and control technology over an area of more than 10,000 m² test field.

BENEFIT FROM THE COMPETENCE OF IMA DRESDEN FOR YOUR MATERIALS TESTING.

As an independent test provider we guarantee reliable results and strict confidentiality. Our credo of thinking and acting like our customers was not carelessly formulated. It contains an earnest pursuit of engineering perfection, which merges intelligent solutions with sustainable usable result at fair prices. This, of course, also includes the flexibility to respond to all kinds of request and, in doing so, to provide peak performances which are not possible elsewhere. Each of our employees bears a portion of this responsibility.

Please do not hesitate to contact us for any questions or inquiries at ima@ima-dresden.de

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d.r.: fabiodevilla/Shutterstock//Page 5) „Laminate and Specimen Manufacturing“: nd3000/Shutterstock// „Waterjet Cutter“: Dmitry Kalinovsky/Shutterstock

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