

IABG. The Future.



**Services for the
construction and agricultural
machine industry**

iABG



IABG – Partner of the construction and agricultural machine industry

Being a reliable partner in the construction and agricultural machine sector – this is our commitment and remains our motivation.

With our highly qualified staff and many years of experience garnered from the automotive and aerospace sectors we consider it our job to help the construction and agricultural machine industry to handle a wide range of challenges. Our customers include leading OEMs and their suppliers.

In Ottobrunn near Munich IABG has leading-edge test infrastructure. In addition to Ottobrunn we operate three large test halls in Dresden and Erding, giving us a total testing surface of 18,000 square metres. We are a competent development partner for construction and agricultural machines. Our activities focus on the *development, testing, certification and operation* of machines, as well as the *realisation of custom solutions*.

During the development phase we offer support in the choice of materials, build customer-specific development test benches, and provide solutions for the virtual testing of construction and agricultural machines. For testing and certification we have the appropriate infrastructure to perform evaluations for environmental simulations, including temperature, climate, dust, corrosion and stone impact simulations, as well as tests for fatigue strength. These are carried out according to relevant manufacturer standards.

Our materials testing laboratory expands our offering, providing any necessary failure and damage analyses for additive manufacturing processes. By employing ever more precise and efficient sensor systems and analysis methods our geodata experts assist in the operation of construction and agricultural machines. We develop solutions that meet the increasing demand for virtualisation and digitisation.

IABG experts have many years of experience in geodata-related projects and deploy cutting-edge technology. We would be glad to advise you personally.



Our seal stands for the quality of our accredited and certified test house.



IABG

Partner of the construction and agricultural machine industry

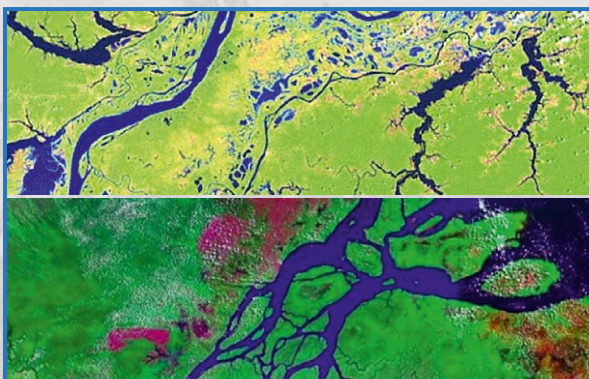


DEVELOPMENT

- Materials
- Test Benches
- Virtual Testing

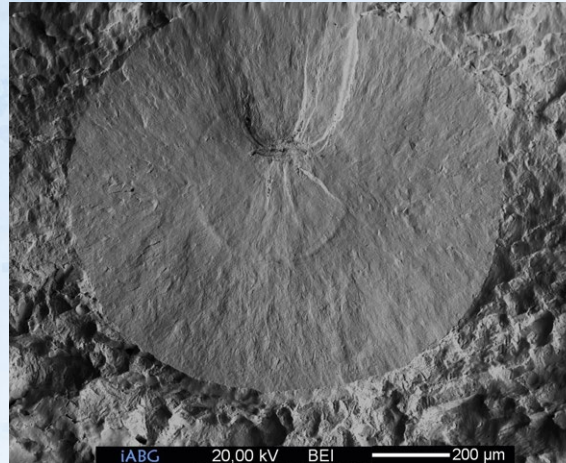
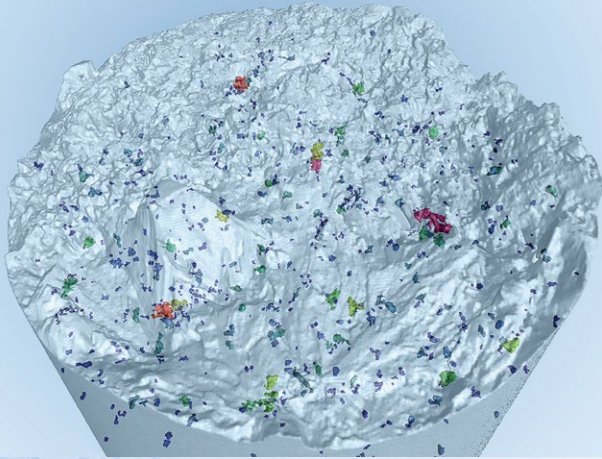
TESTING & CERTIFICATION

- Fatigue Strength
- Service Life
- Product Qualification
- HiL Testing
- Certification Testing



OPERATION

- Load Measuring
- Geodata



Development • Materials

Services

VDI 3822-Compliant failure analyses

- Determination of failure mechanisms
- Deduction of possible damage causes
- Creation of failure reports
- Consulting on failure prevention measures
- Definition of remedial measures

Material tests

- Characterisation of macrostructures and microstructures
- Fracture surface analyses
- Hardness tests
- Chemical materials analyses
- Physical tests
- Residual stress measurements by x-ray
- X-ray tomographic investigations

Additive manufacturing

- Component development
- Consulting for manufacturing
- Testing of components

PowderGenetics®

- Procedure for characterising metal and ceramic powder material
- Qualitative and quantitative determination of elementary powder properties
- Basis for optimisation, correlation and stabilisation purposes

Aggregate services

- Method development
- Consulting on material selection and optimisation
- Drafting of quality assurance standards



Development • Test benches

Services

Large test benches

- Realisation of mechanical superstructures
- Supplier management
- In-service support

Infrastructure

- Infrastructure operation and supply at the IABG sites in Ottobrunn, Dresden and Erding
- Hydraulic load systems
- Pneumatic load systems
- Facility management

Mechanics

- Supply of specialised mechanics/hydraulics staff
- Supply of machine tools
- Supply of linear axles and other test bench equipment





Development • Virtual testing

Services

- **Reference test**

Selection and characterisation of materials, feasibility check, comparative data for simulations

- **Validation simulation**

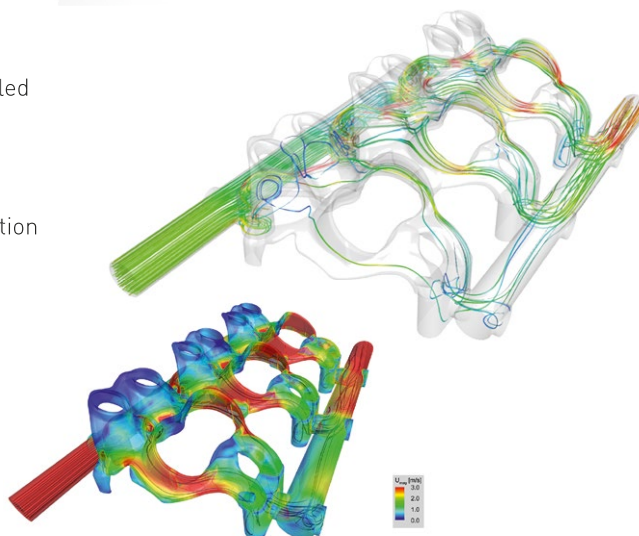
Material model for static and dynamic loads, model simplification, virtualisation of the entire reference set-up, test environment or design load conditions

- **Virtual design**

Feasibility study, design optimisation, detailed analysis, preparation of the qualification

- **Product qualification**

Design specification, qualification, certification

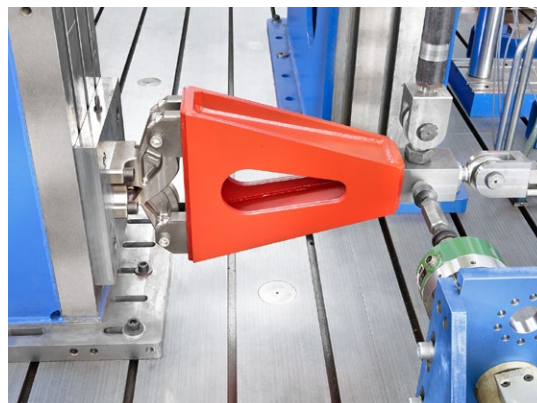




Testing & certification • Fatigue strength

Services

- Structural tests
 - Fatigue tests
 - Static load tests
 - Residual strength tests
 - Structural tests with respect to deterioration, corrosion and wear
- Functional tests
- Structural monitoring, structural health monitoring (SHM), structural inspection and analysis

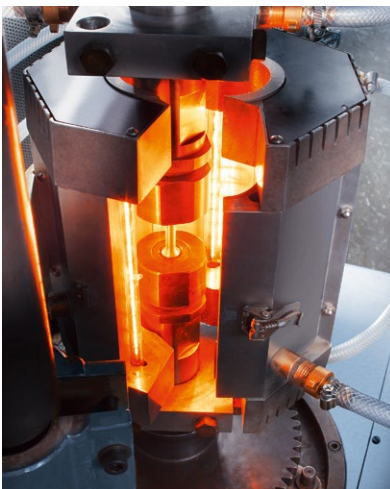
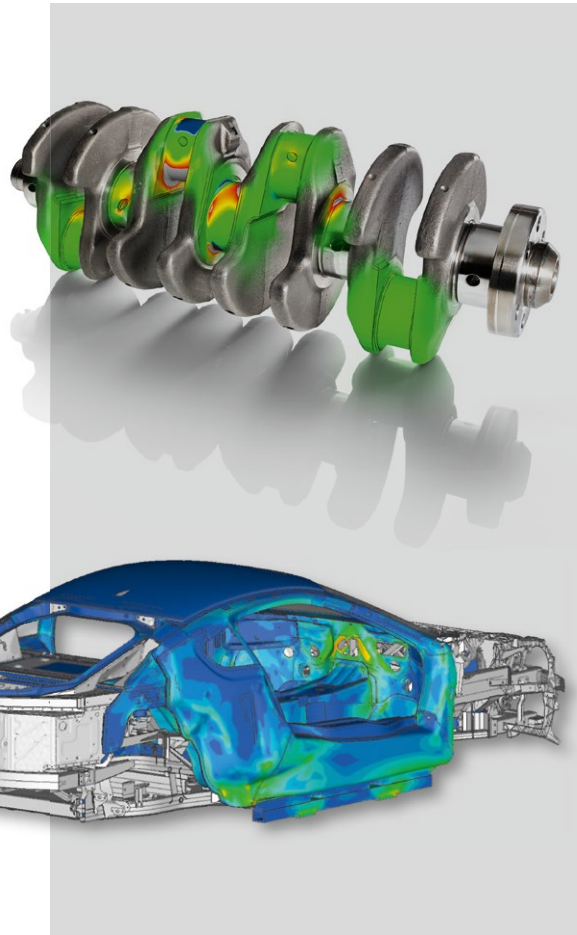




Testing & certification • Service life

Services

- Operational load simulations and load data analyses
- Static and dynamic structural analyses
- Simulation of manufacturing, functional and misapplication processes
- Fatigue strength tests for material samples
- Method development
 - Fatigue strength concepts
 - Automated simulation chain (MBS, FE, fatigue)





Testing & certification • Product qualification

Services

Vehicle tests

(Drive-in climate and altitude chambers)

- Application measurements using a roller test bench under simulated environmental conditions
- Fuel consumption and emission measurements at certain temperatures and reduced ambient pressure (simulation of altitudes of up to 3,800 m)
- Cold-start tests (down to below -40 °C, simulation of altitudes of up to 5,000 m)



Component tests

- Temperature and humidity
- Temperature shock
- Reduced/increased ambient pressure
- Quick pressure cycling tests (decompression)
- Solar simulation
- Icing and snow
- Splash water
- Salt mist
- Dust and waterproofness
- Combined environmental and functional tests





Development • HiL testing

Services

- Development and manufacture of system and HiL test benches as well as test systems
- Modernisation and extension of test benches and test systems
- Service and support for test benches and test systems
- Development of functions and automation solutions for test benches and test systems (MATLAB/Simulink & dSpace as well as National Instruments/LabVIEW)





Testing & certification • Certification testing

Services

Certification of systems and subsystems

- Consulting during the certification
- Drafting of relevant documents
- Application and documentation of the certification tools

Tests

- Creation of specifications
- Development of test concepts and specifications in compliance with the certification and validation regulations



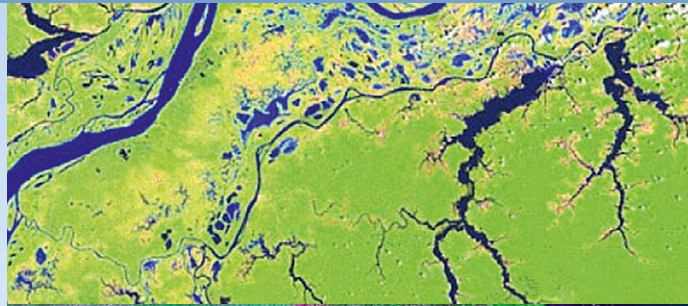


Operation • Load measuring

Services

- Fatigue strength tests
 - Operational load measurements/analyses
 - Deduction of rated loads and development of test concepts
 - Statistical test planning and evaluation
- Structural monitoring, structural health monitoring (SHM), structural inspection and analysis
- Metrological services





Operation • Geodata

Services

Remote sensing and photogrammetry

- Evaluation of satellite images and aerial photo data
- Creation of terrain and surface models
- Production of orthophotos

Mapping

- Vector data acquisition
- Automated image analysis
- Topographic mapping
- Land-use mapping
- Emergency mapping and risk evaluation

3D Stereo evaluations

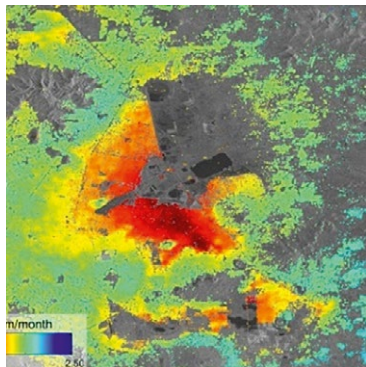
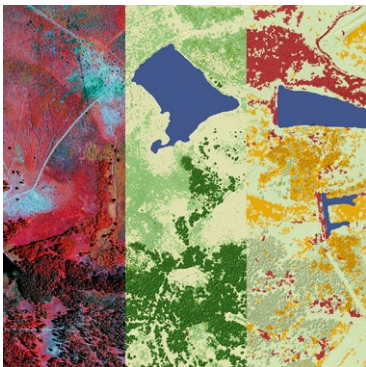
- 3D city models
- Cadastral surveying

Geoinformatics

- GIS analysis
- Application development
- Database management

Land monitoring

- Ground motion
- Analyses of land changes (crop yield, security applications, urban development ...)





AUTOMOTIVE



INFOCOM



MOBILITY, ENERGY & ENVIRONMENT



AERONAUTICS



SPACE



DEFENCE & SECURITY

IABG. The Future.

IABG offers integrated, ground-breaking solutions in the sectors Automotive • InfoCom • Mobility, Energy & Environment • Aeronautics • Space • Defence & Security. We provide independent and competent consulting. We implement with future viability and target orientation. We operate reliably and sustainably. Our success is based on an understanding of market trends and requirements, on our staff's technological excellence and a fair relationship with our customers and business partners.

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