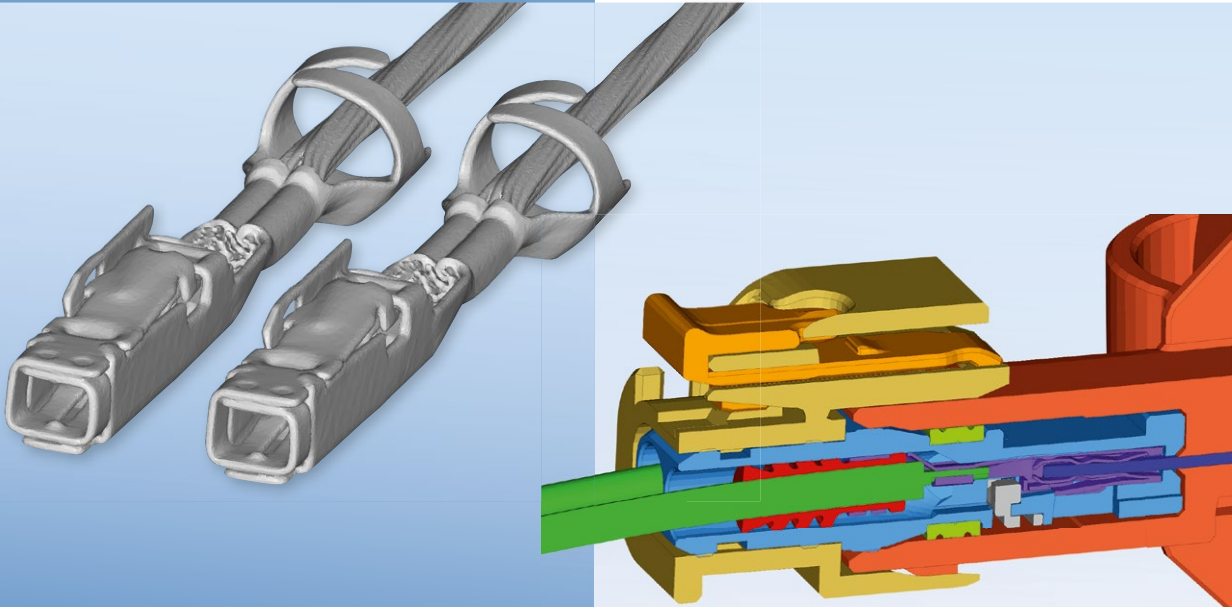
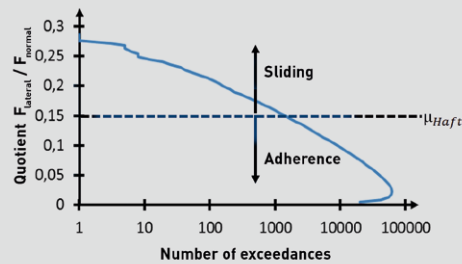
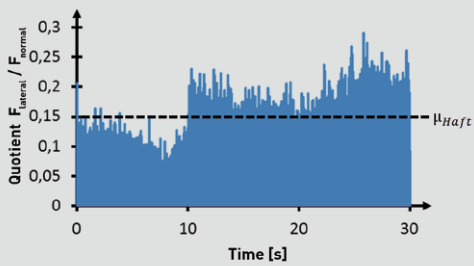
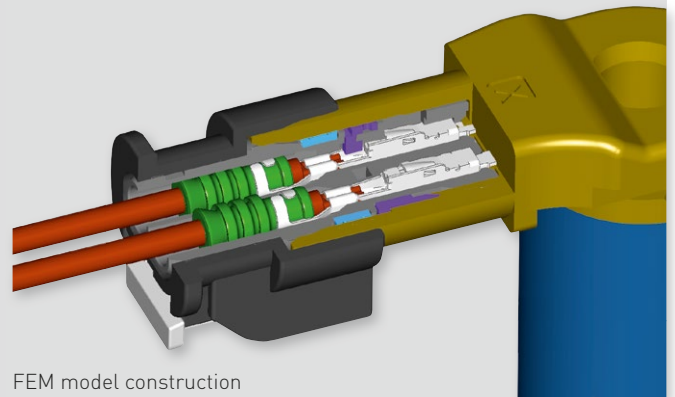
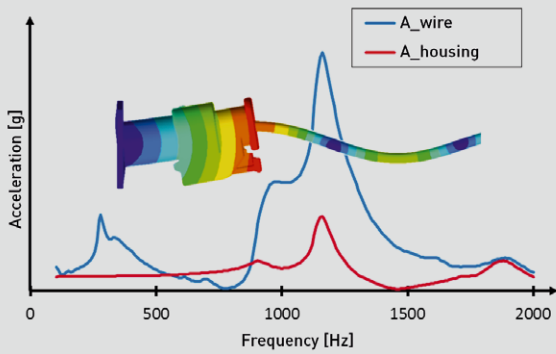
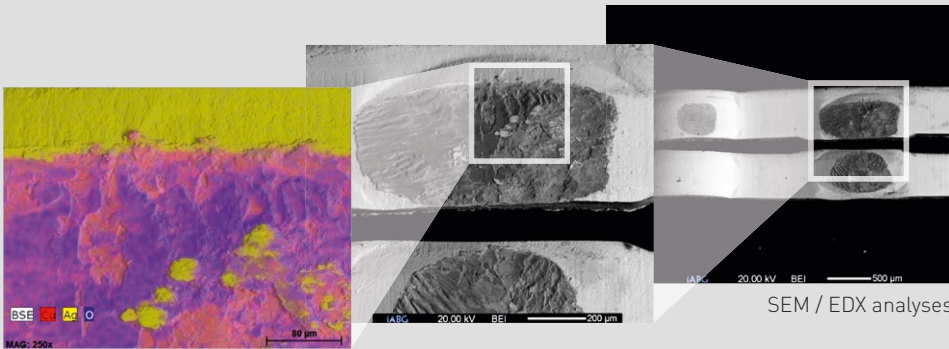


Intelligent Testing

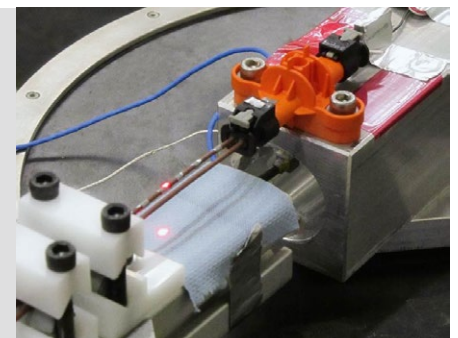
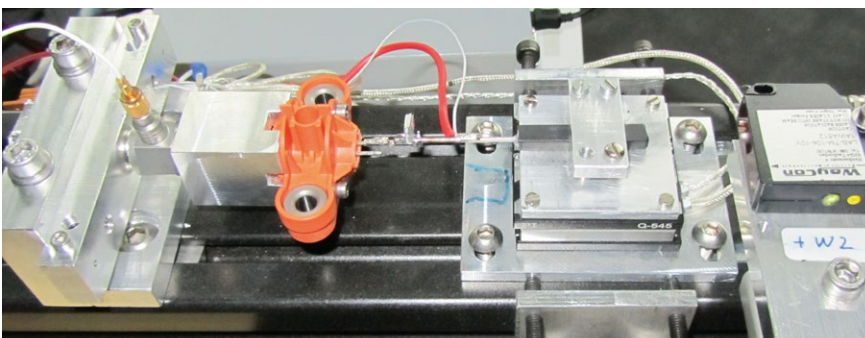


Electrical Contact Systems

Causes of damage
Optimisation
Qualification



Computational determination of the number of exceedances of static friction



Electrical Contact Systems

Causes of damage • Optimisation • Qualification

Electrical contact systems play a decisive role in the reliability of technical systems. Mechanical loads from external forces and vibrations under corrosive environmental conditions place high demands on complex connectors. Sliding movements and electro-chemical processes can influence the wear behaviour of surfaces in the contact system and thus affect their electric conductivity. In order to guarantee functionality during the required service life, these effects must be understood and taken into account in the design and verification phase.

The installation of a verification chain of simulations and tests requires knowledge of the relevant damage mechanisms and the corresponding external loads and internal stresses and strains. This knowledge provides the background to evaluate and improve the system's reliability. IABG follows an interdisciplinary approach and harnesses the necessary simulation, testing and analysis methods to evaluate and optimise the performance of a system design.

Services

VDI 3822-compliant damage analysis

- Determination of the primary damage mechanism (e.g. wear or fretting corrosion)
- Deduction of possible damage causes
- Damage reconstruction via 2D in-situ x-ray analysis

Modelling and comparison of models

- Generation of CAD data from CT scans of real components
- Construction of an FE model including cable routing and contact surfaces
- Inclusion of material-specific parameters
- Experimental verification of vibration behaviour
- Validation of deformations and sliding movements with real-time radiography
- Experimental determination of parameters and model adjusting

Load determination through simulation and testing

- Load determination by means of vehicle and test bench measurements
- Simulation of stress and strain on cables, components and contacts
- Load data analysis and derivation of damage-equivalent test loads (FatiResponse)
- Simulation of external and internal deformations, contact forces and sliding movements

Load capacity determination

- Vibration tests under various climate and environmental conditions
- Abrasion tests on contact systems
- Continuous or intermittent measurement of frictional wear and change in resistance
- Statistical test planning and evaluation

Verification and optimisation of the system's reliability

- Comparison of loads and load capacity parameters
- Computational estimation and experimental verification of function and durability
- Computational and experimental parameter studies
- Optimisation of component design, cable routing and system integration



AUTOMOTIVE



INFOCOM



MOBILITY, ENERGY & ENVIRONMENT



AERONAUTICS



SPACE



DEFENCE & SECURITY

About IABG

We are a closely networked business group and offer integrated, future-oriented solutions in the sectors Automotive • InfoCom • Mobility, Energy & Environment • Aeronautics • Space • Defence & Security. We understand the requirements of our customers and support them independently and competently. We implement effectively, efficiently and with target orientation. We operate reliably and sustainably. Our international market presence and our success are based on technological excellence and a fair relationship to our customers and business partners.

As a development partner we provide quality control services and develop solutions in the areas of functional efficiency, quality, design, and materials. We offer a broad spectrum of products and services, ranging from numerical analysis to experimental testing to the realisation of turnkey, customised test systems that we operate for the customer.

For more information please contact:

Phone +49 89 6088-4454

Fax +49 89 6088-4066

automotive@iabg.de

www.iabg.de

IABG
Einsteinstraße 20
85521 Ottobrunn
Germany
Phone +49 89 6088-2030
Fax +49 89 6088-4000
info@iabg.de
www.iabg.de

Berlin Bonn Dresden Erding Hamburg Hannover Karlsruhe Koblenz
Lathen Letzlingen Lichtenau Noordwijk(NL) Oberpfaffenhofen