

## Special facilities

- Hydraulic cylinders for tension, compression, bending and torsion with capacities of some N up to 15 MN
- Universal servohydraulic testing machines with capacities of 25 kN up to 5000 kN for static and dynamic testing
- Three-dimensional test equipment (tension, shear and crack-opening) for tests on fastenings up to 400 kN in cracked and non-cracked concrete (suitability tests, reliability tests and seismic tests)
- Equipment for suitability tests (tensile tests) up to 250 kN and reliability tests on fastenings in non-cracked and cracked concrete
- Servohydraulic cylinders with capacities of 100 kN up to 2000 kN for variable use in static and dynamic tests of every kind
- Large-scale test building with stationary test equipment up to 15 MN and movable frames, mountable on a strong floor of 6 x 25 m<sup>2</sup> and 6 x 10 m<sup>2</sup> for variable tests (uniaxial or multiaxial load)
- Stationary equipment for repeated load tests on single anchors in non-cracked concrete with a possible upper load of 350 kN
- Various electronic data acquisition systems for static and dynamic tests
- Facilities for creep, relaxation and shock tests, usable also with climatic conditioning
- Facade test facilities for static and cyclic distributed loads
- Impact device with drop weights from 500 kg to 2300 kg and a drop height up to 9 m
- Equipment for measuring and recording of parameters in welding processes
- Climatic chamber for temperature and humidity (EOTA wall)



Testing of laminated safety glass and fracture pattern

## Department

Building Construction and  
Component Testing

## Units

- Metal Construction,  
Welding Technology
- Concrete Construction,  
Composite Construction,  
Fastening Technology
- Lightweight Construction,  
Glass Construction,  
Facades



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EST-Duplex-Deformation-Unit before and after complete deformation and its application on a railway engine

### Research / Development

- Experimentally orientated research projects in all areas of the civil engineering as well as research in the area of fastening technology and welding engineering
- Development of testing methods and assessment procedures for the suitability and optimization of components, building constructions and structural systems
- Process engineering in the area of welding

### Surveillance / Certification

- Supervision and certification of construction products: test laboratory, inspection body and certification body, authorized by the German Institute for Civil Engineering (DIBt) to issue certificates of supervision
- Notified Body according to EU Construction Products Directive (CPD)
- Initial testing of safety relevant constructions and connections and check of the suitability for welding and splicing

### Investigations / Analyses / Expertises

- Load capacity tests and suitability tests on construction parts, connections and fasteners in steel and concrete constructions, glass structures, light metal constructions, composite constructions, scaffoldings and transition joints
- Testing laboratory accredited according to DIN EN ISO 17025 (former DIN EN 45001) by the DAP (Deutsches Akkreditierungssystem Prüfwesen GmbH / German Accreditation System for Testing) for various test procedures
- Static and dynamic tests on prestressing tendons, reinforcement connections, tension rod systems, anchorages and adhesive bonded joints
- Examinations and assessments of steel constructions, composites of steel constructions, reinforced and prestressed concrete constructions including prefabricated members as well as reinforcement technologies and special concrete constructions such as fibre-reinforced-concrete
- Examinations and assessments of composite and sandwich constructions for roofs, floor slabs, walls, glass constructions, noise barrier elements and facade constructions of every kind including connections and fasteners as well as membranes
- Assessment of fire damages on supporting constructions
- Load-capacity tests on fastenings of every kind: metal expansion anchors, bonded anchors, concrete screws, anchor channels, headed bolts, plastic dowels, prefabricated joints, lifting anchors for precast concrete elements and connections of these elements, etc.
- Damage analysis for the complete area of civil engineering
- Assessment of welded connections by non destructive testing (NDT) as well as strength testing and metallographic examinations and analysis of welding processes by measuring and recording of welding parameters with special equipment
- Expert activity for supervision, courts, enterprises
- Suitability tests on special structures of civil engineering and associated civil engineering disciplines

### Information

Publications (e.g. "Otto Graf Journal" or "Betonkalender"), reports on research projects and lectures

### Consulting Service

- Comprehensive expert advice for enterprises, associations, public administrations and private customers on the development of new technologies and constructions
- Basic advice about technical application problems and other questions in connection with construction products and building constructions in civil engineering
- Consultation of companies and organizations on obtaining general technical approvals or European Technical Approvals (ETA)
- Technology consulting about the optimization of welding processes.

### Cooperation in Committees

Participation in national and international committees of experts for the elaboration of new regulations (for example DIN, DIBt, CEN), in research unions (DVS, EFB, FGW), and associations (SGF, DVS, IiW)



Testing of fastening elements under tension and shear in cracked concrete