BRNO UNIVERSITY OF TECHNOLOGY

FACULTY OF CIVIL ENGINEERING

INSTITUTE OF RAILWAY STRUCTURES AND CONSTRUCTIONS

„Railway technology has been already connecting us for three centuries …“

Our activities

Research and professional activities of the institute are focused on designing and assessment of modern and effective railway structures regarding improving reliability and safety of railway transport. We help in designing of railway structures; we monitor and diagnose railway constructions; we carry out static and dynamic analyses; we measure and evaluate acoustic and vibration parameters regarding hygienic requirements and environmental protection.

Our equipment

Facilities provide possibilities of the multichannel acquisition of acoustic or vibration parameters of civil or machinery structures; that mean noise, vibration, strain, deflection, pressure, temperature and further dynamic and experimental modal analyses:

- multichannel measuring units for static and dynamic measurement of vibration, strain, temperature and experimental modal analysis;
- sets of displacement sensors, accelerometers, strain gauges, temperature and pressure sensors;
- sound analyzer, microphones;
- sets of impact hammers and exciters for experimental dynamic analyses;
- high speed camera including lightening;
- sets for static load test and dynamic load test;
- geodetic total stations, instruments for technic or precise leveling, gauge bars etc.

Software:

- modelling of road or railway transport noise (SoundPlan);
- software for FEM or BEM (LMS Acoustic, Ansys);
- Geographic Information Systems (ArcGIS);
- data processing FlexPro;
- software developed at the department for data evaluation in time, frequency and time-frequency domain;

What do we offer?

- Support for designing of railway structures and constructions, cooperation in preparation of railway and tram tracks modernization and reconstructions studies;
- short or long term continual monitoring and diagnosis of tracks;
- static and dynamic analyses of railway structures, calculations of stability and reliability of railway superstructure and substructure;
- measuring and analyses of acoustic and vibration parameters of railway structures as well as other civil and machinery structures (e.g. road pavements by SPB and CBX methods);
- experimental modal analysis of civil and machinery structures, analyses under static or dynamic loading;
- development of special instrumental equipment, development of software for data processing;
- application of artificial intelligence methods in process of structures assessment.

References

- AŽD Praha s.r.o.
- BONATRANS GROUP a.s.
- CDP Bharat Forge GmbH
- Centrum dopravního výzkumu, v. v. i.
- DT-Výhybkárna a strojírna, a.s.
- ECO-PRODUCTION Vřesová, spol. s r. o.
- EUROVIA CS, a.s.
- FIRESTA-Fišer, rekonstrukce, stavby a.s.
- Getzner Werkstoffe GmbH
- Chládek a Tintěra, Pardubice a.s.
- INFRAM a.s.
- KOLEJ CONSULT & SERVIS, spol. s r.o.
- MORAVIA CONSULT Olomouc a.s.
- Railway Infrastructure Administration, state organization
- Brno City Municipality
- SUDOP PRAHA, a.s.
- SUDOP BRNO, spol. s r.o.
- ŽPSV a.s.

Contact

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