



Seat Comfortability Laboratory

Principal goals and activities

- Development and resting of seats in terms of comfort, ergonomics and safety of the occupant.
- Analysis of contact pressures at iteration of the human body with the seat.
- Evaluation of breathability of the seat.
- Frequency analysis of seats in real and laboratory conditions.

General focus of laboratory

- Seat Comfortability Laboratory is equipped with specific technology for static and dynamic experimental analysis of parameters for evaluation of seat comfortability.
- Research focuses on ergonomics – position of the human body towards the controls in combination with mechanical vibration.

Offer of technology and expertise

- Static analysis of strength and breathability of seats.
- Distribution of pressure in the contact zone under static and dynamic load.
- Analysis of the effects of mechanical vibration – distribution characteristics of the seats.
- Experiments in the operating environment.
- Laboratory experiments with one or six degrees of freedom

(hexapod).

Specific instruments and outcomes

- The laboratory offers measuring platforms for static and dynamic testing of seats and specimens of foam, upholstery materials and frame components.
- Rapid, linear hydraulic actuator, max. velocity 15 mps (54 kph) in a distance of 250 mm, for single-action safety load tests.
- Hexapod – a platform with six degrees of freedom, mechanical vertical vibration combined with acceleration in the transversal plane.
- Several XSENSORS units with sensitivity from 0.14 to 2.7 N/cm² in the size 50.8 × 50.8 cm, 60.9 × 182.9 cm, for static analysis of contact pressure, and 7.6 × 12 inch with sampling frequency up to 100 Hz for dynamic tests.
- 3DH unit for experimental analysis of the H-spot position in the seat.
- Dewetron 5000 mobile system with s 16 synchronous analogue inputs for tests in reality conditions (e.g. on-board), with optional 12V power supply.
- Platform for measurement of seat breathability.
- Miniature accelerometers installed in the contact zones of the human body and the seat for frequency analysis of transfer characteristics
- Dummies for static and dynamic tests.
- CAD and FEM software with computational equipment for simulation with virtual models.

