



Laboratory of Single-purpose Machines

Principal goals and activities

- Research, development and design of new single-purpose machines and equipment (for automotive, textile, glass and mining industry, etc.).
- Research and development of nodes of single-purpose machines with application of controlled drives and mechatronic components.
- Theoretic and experimental research of dynamic properties in high-speed mechanisms and their parts.
- Material, shape and structure optimisation of selected subsystems of machines with respect to their manufacturing processes.

General focus of laboratory

- Design of single-purpose machines and equipment.
- Optimisation of structures in single-purpose machines and equipment.
- Simulation of machine behaviour using appropriate mathematical models.
- Investigation of operating processes using a high-speed camera.
- Experiment support to machine design.

Specific instruments and outcomes

- Single-purpose equipment for the folding of nanofibrous filtration material.
- Single-purpose machine for preparation of parallel ridges and cutting.
- Fishing bait tier.
- Machine for collecting of samples of solid fuel and biomass.
- Machine for spot welding of thread.
- Single-purpose machine – rotor insulation winder for electric motors.

Offer of technology and expertise

- Design of single-purpose machines and equipment.
- Modelling of dynamic properties of machines and mechanisms with respect to flexibility of bodies and reducing of machine frame vibration.
- Structural analysis using FEM, CAD applications with preparation of drawings and documents.
- Investigation of problems in mechanism design.
- Measurement of selected dynamic and kinematic parameters using contact and contactless methods.

