



Laboratory of Textile Machines

Principal goals and activities

- Research and development of nodes of textile machines with application of controlled drives and mechatronic components.
- Theoretical and experimental research of dynamic properties in high-speed mechanisms of textile machines.
- Material, shape and structure optimisation of selected subsystems of textile machines with respect to their manufacturing processes.

General focus of laboratory

- Design of textile machines.
- Simulation of machine behaviour using appropriate mathematical models.
- Investigation of textile processes using a high-speed camera.
- Investigation of technology processes via modelling and simulation.
- Balancing of rotors of textile machines.
- Experiment support to machine design.

Specific instruments and outcomes

- Prototypes and functional models of textile machines and their nodes.
- Specific method of yarn distribution in spinning machines with kinetic energy accumulators.
- Technology of manufacturing self-supporting lower bobbins for sewing machines.
- Functional model of a needle mechanism with a controlled drive for a sewing machine.
- Functional model of a mechatronic shuttle propellant system with acceleration air jets.

Offer of technology and expertise

- Research and development of nodes in textile machines.
- Stress and deformation analyses and optimisations, analyses and optimisation of magnetic fields.
- Optimisation of dynamic parameters of machines and equipment.
- Measurement of basic dynamic and kinematic parameters using contact and contactless methods.
- Investigation of textile processes using a high-speed camera.
- Consultancy in the field of textile machine design.

