A possible research and cooperation areas in selected areas in Division of Working Machines, Drives and Control

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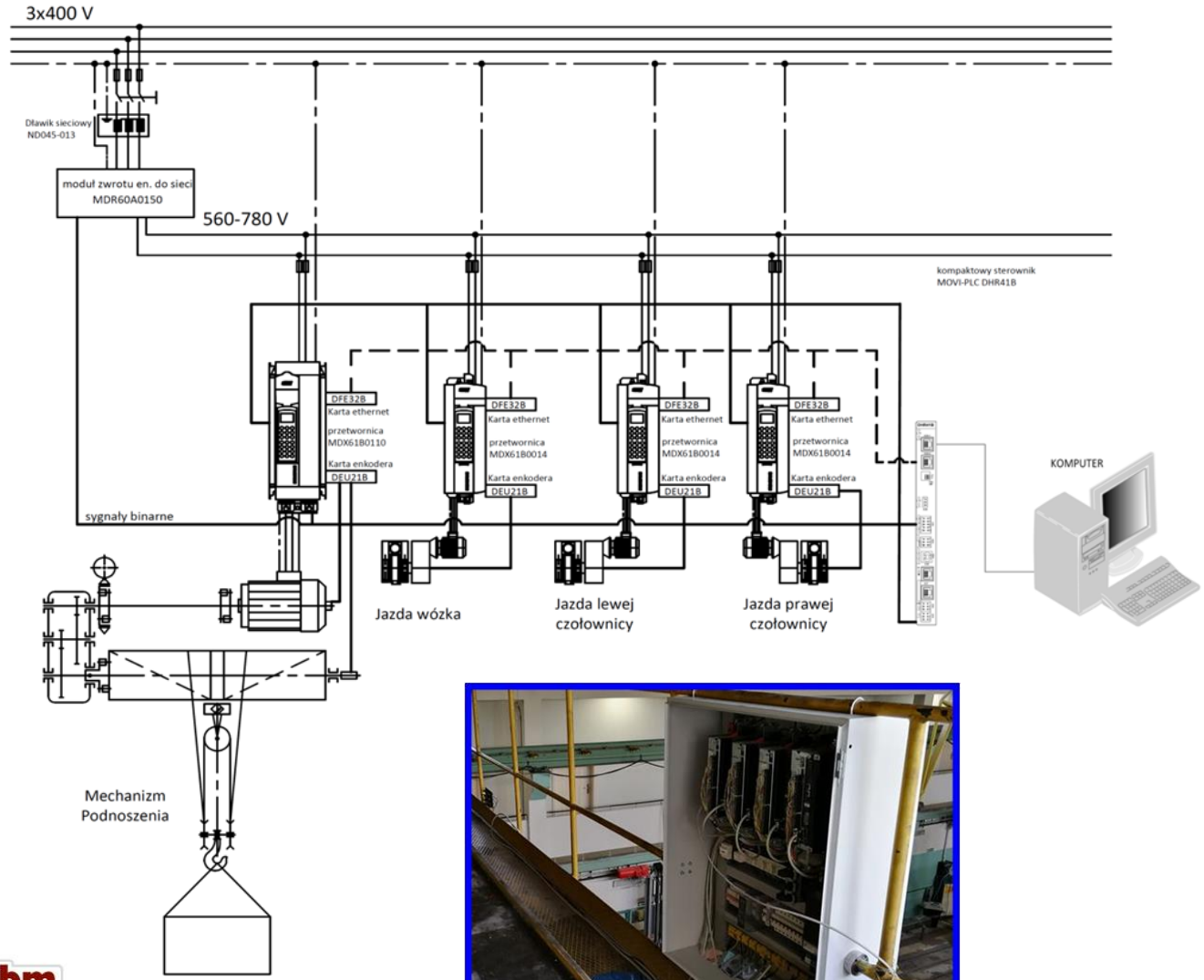
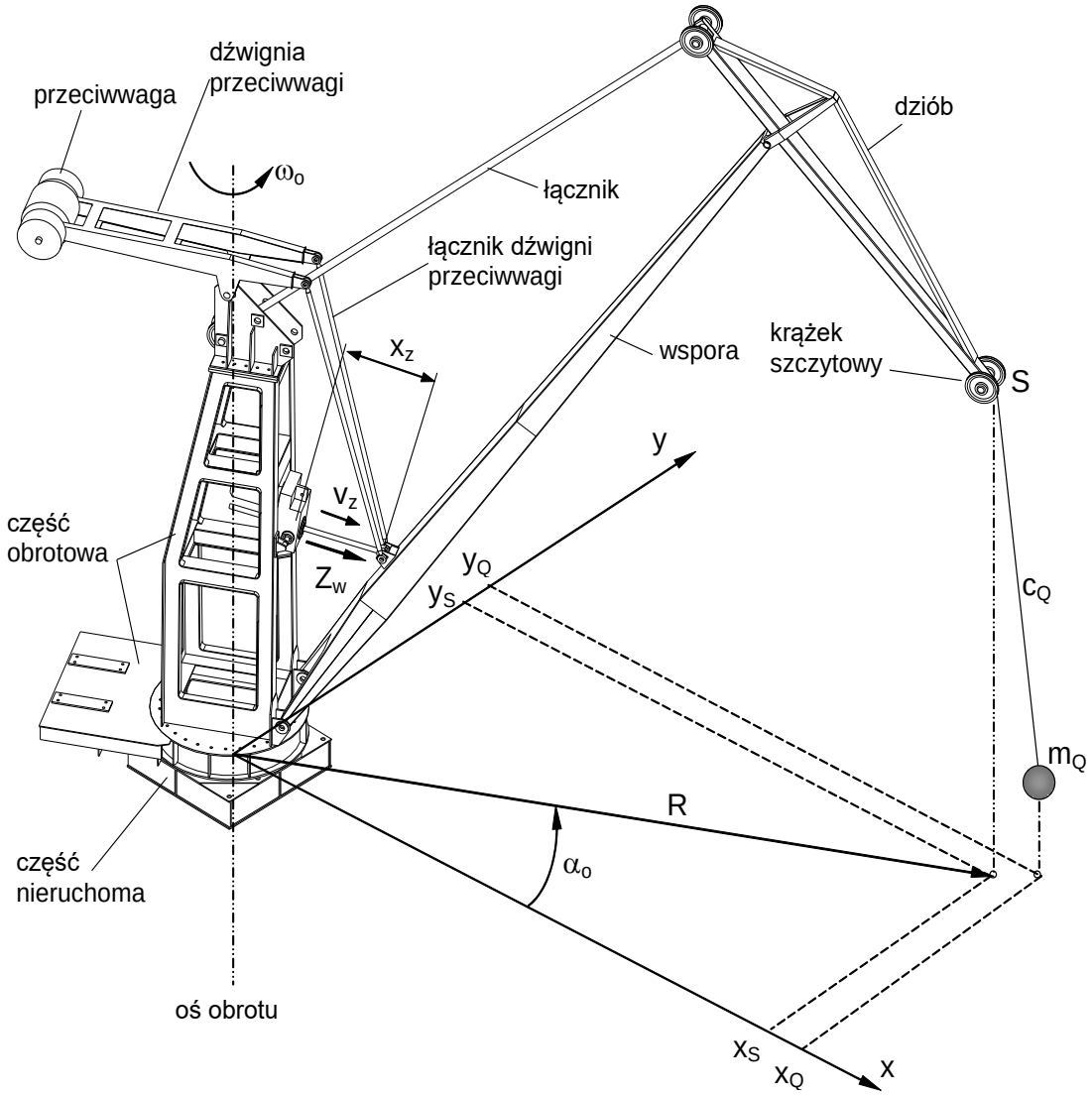
Overhead crane lifting mechanism with energy recovery system

- identification of the drive and control system;
- development of research methodology on energy transfer between drive elements;
- determination of the most favorable parameter system;



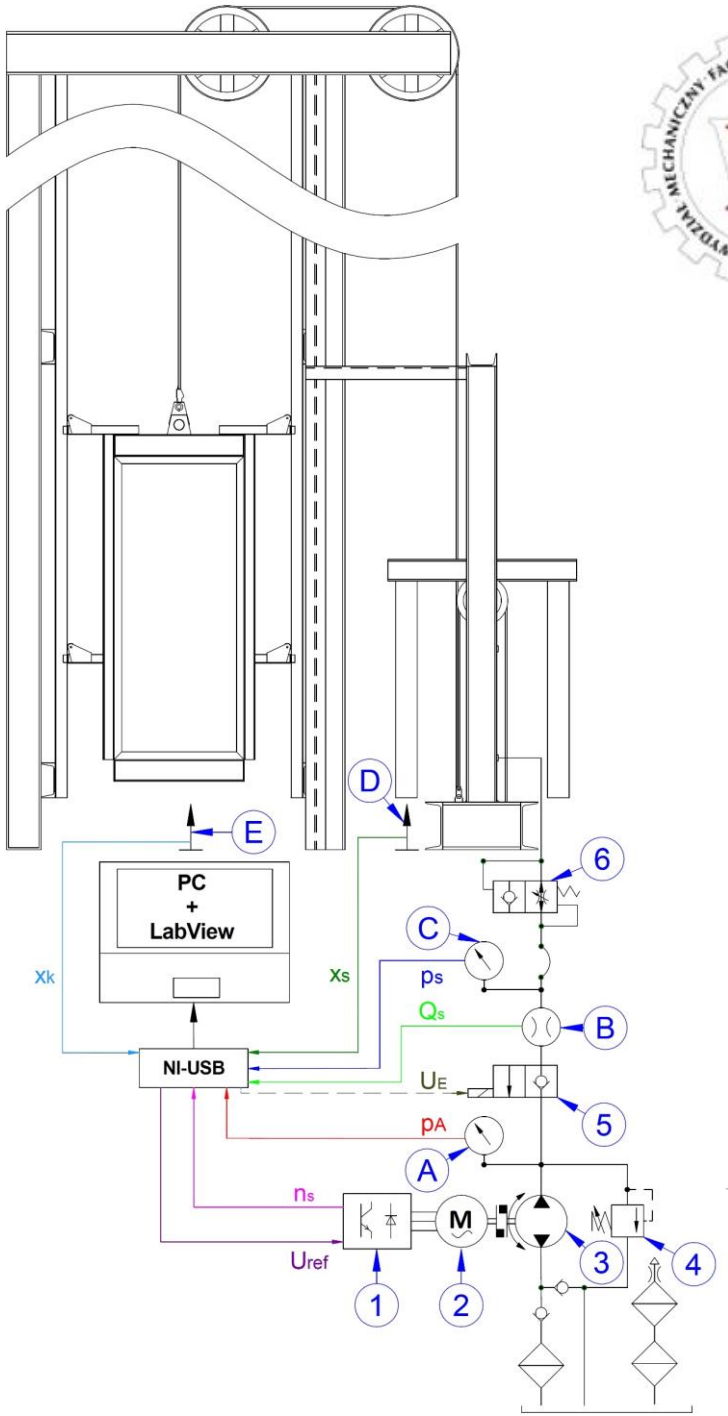
Harbor crane with associated movements of boom and lifting mechanisms

- Identification of the drive and control systems;
- Development of the research methodology on maintaining the same load transport height;
- Design of drive systems and a program controlling two mechanisms;



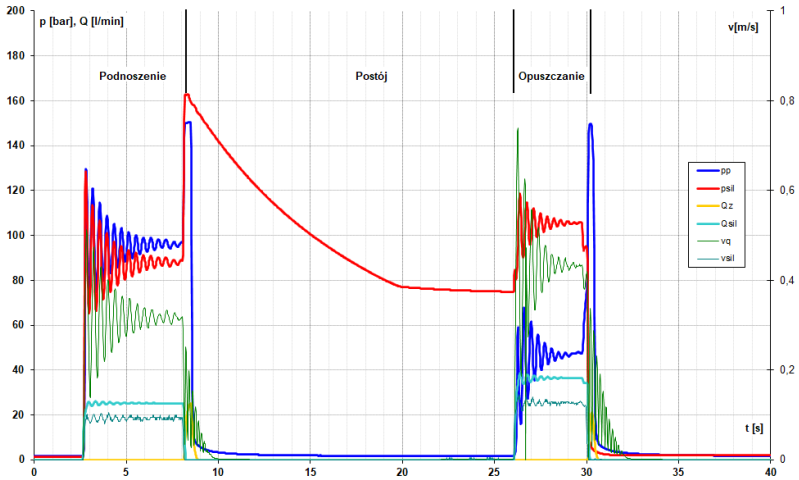
Indirect hydraulic elevator (“roped hydraulic") with EHD and energy return module

- Identification of an electrohydraulic drive system with ropes;
- Development of a control and measurement program;
- Development of the methodology of energy consumption research (constant and time-varying values);



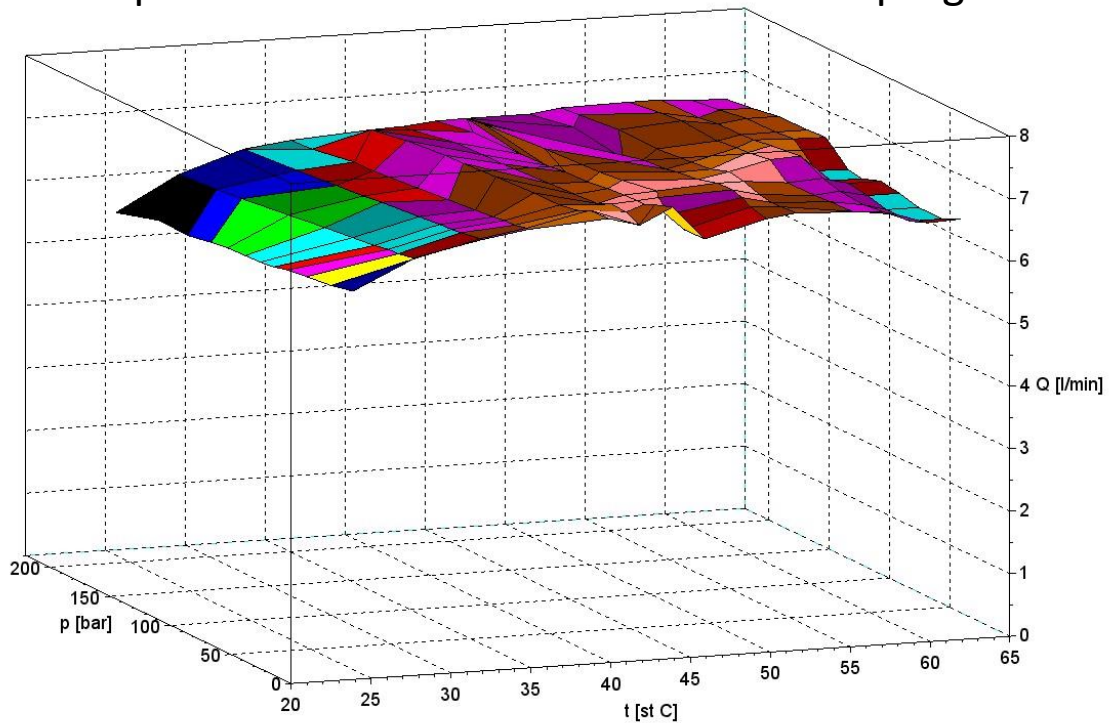
Indirect hydraulic elevator (“roped hydraulic") with EHD and conventional drive – dynamics comparison.

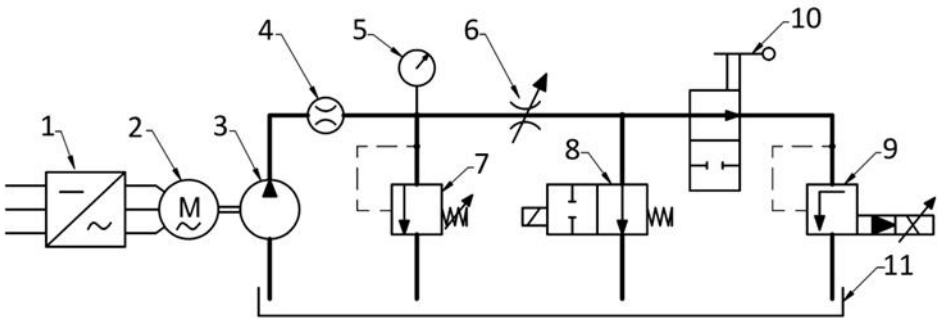
- Development of construction documentation necessary to carry out strength calculations;
- Identification of two independent drive systems;
- Development of a control system limiting dynamic overloads;



Influence of temperature on the efficiency of a hydraulic pump

- Identification of the test stand;
- Development of a methodology for testing a pump with different speeds and oil temperature;
- Development of a control and measurement program.

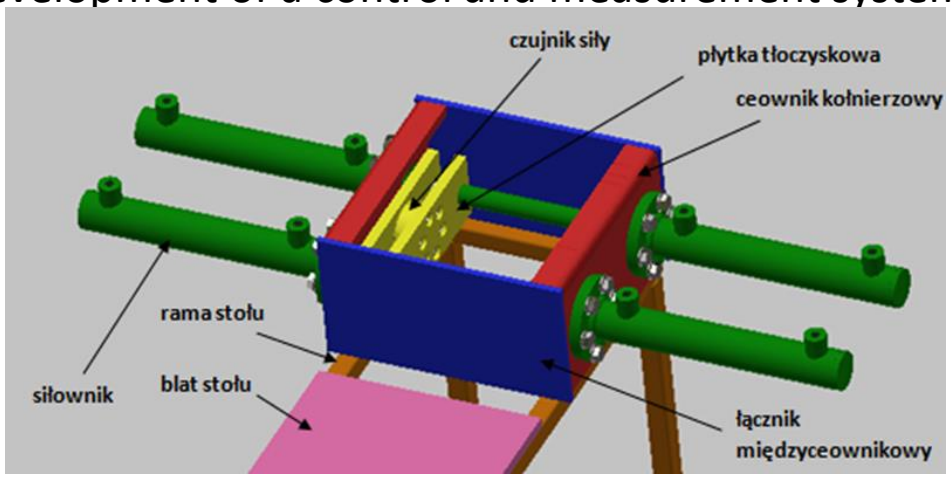


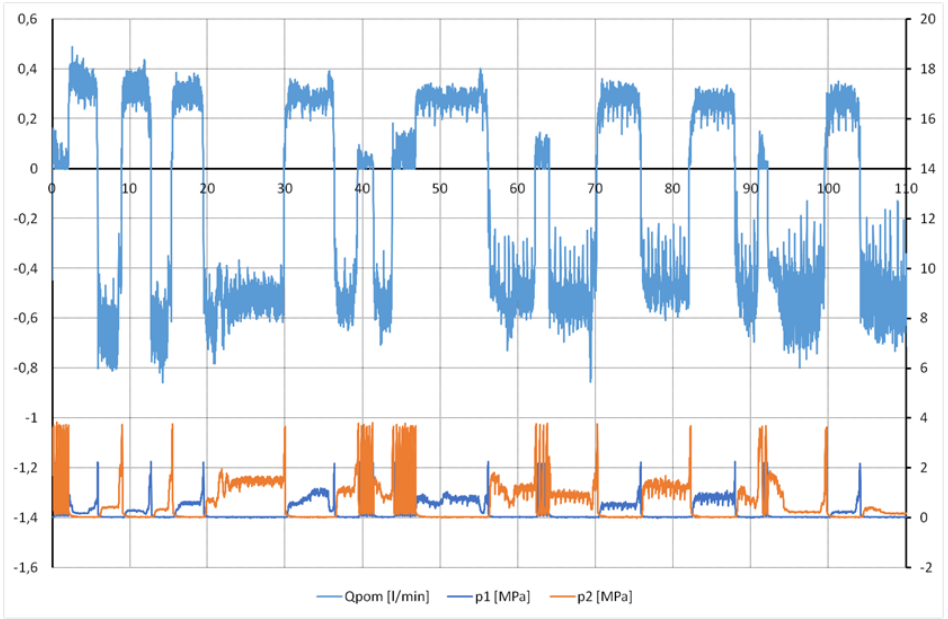


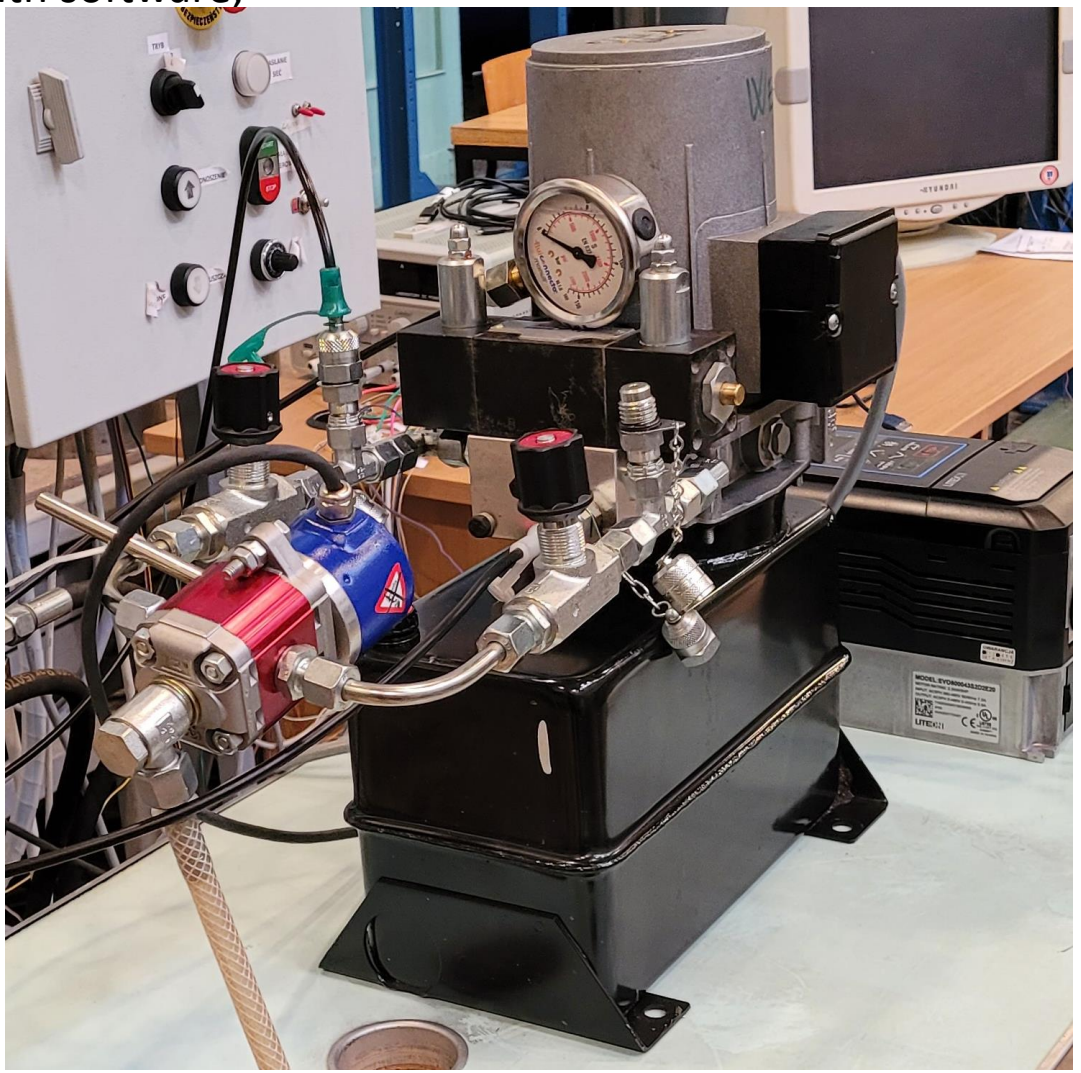
1 - inverter
2 - PMSM
3 - gear pump
4 - flowmeter
5 - pressure transducer
6 - throttle valve
7 - pressure relief valve
8 - shut-off valve
9 - proportional pressure relief valve
10 - 2–way ball valve
11 - tank

Wear of hydraulic actuators - comparison of different coatings of pistons and rods

- Design of the stand with mutually loading actuators;
- Development of the methodology for testing the wear of actuator components;
- Development of a control and measurement system with software;







Screw conveyor modernization

- Determination of the resistance coefficient for materials with different granulation and bulk mass;
- Adaptation of the device to different materials (change of the charging hopper);
- Development of the methodology and measurement system;

Low-cost grain bag palletizing system

- Development of the design of the palletizing system;
- Selection of transport elements;
- Automation of the palletization proces;