

Bachelorthesis

Development of a Test Rig for Flow Measurements through Cracked Specimens

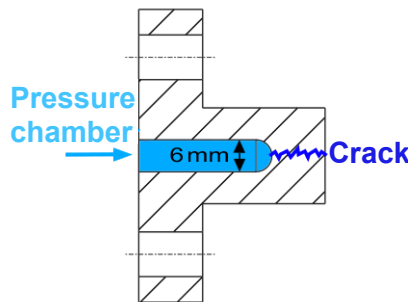
As part of ongoing research into crack growth in hydraulic components, flow measurements through specimens containing artificial cracks are to be conducted. The institute provides a hydraulic pressure supply system that can serve as the basis for the experimental setup.

The objective of this thesis is to design and construct a downstream test rig that enables precise flow measurements. The setup will allow systematic investigation of the flow characteristics through cracks in test specimens under varying configurations.

A central aspect of the work is the reliable control of oil temperature and pressure, ensuring both parameters can be adjusted to defined values. The flow rate through the crack must be measured accurately. The thesis therefore includes conceptual planning, designing the final system, assembly, and the execution of initial measurement series to verify functionality and measurement accuracy.

Planned Work Steps:

- Definition of test rig requirements
- Development of test rig concepts
- Design and construction of the trig
- Planning, execution, and evaluation of initial flow measurements
- Documentation and presentation of results



Type of Work:

- Focus: Conceptual design, experimental setup, flow measurement
- Fields: Hydraulics, Mechanical Design, Conduct of experiments

Timeline:

- Start: Immediately
- Duration: 3 months

Requirements:

- Interest in hydraulic test setups
- High degree of independence and motivation
- Strong academic performance
- Prior knowledge in fluid technology is advantageous

If you are interested in this thesis project, please feel free to contact me. The scope of the work can be adapted or expanded according to your strengths and preferences.

Contact: M.Sc. Fabian Blatter ☎ +49 721 608-45381 ✉ fabian.blatter@kit.edu