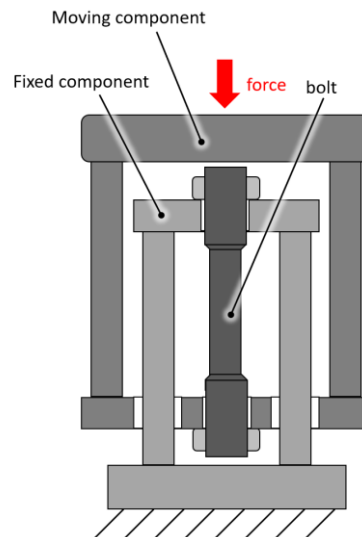


Open Project work!

Development and design of a force sensor



Motivation

The institute has a drop weight tester for impact loading of various components. At this drop weight tester, a holder for impact testing of bolt is mounted (see picture). Fracture tests were carried out on various bolts. However, the measured breaking forces are significantly higher than on other test rigs at the institute. This is due to the mass acceleration forces, which are also measured by the current force sensor. This sensor is placed too far away from the bolt to be tested.

Therefore, a force sensor (on strain gauge basis) should be developed. This sensor should be compact and mountable directly at the bolt.

Focus

- Design (incl. dimensioning) of a compact force sensor
- Creation of the necessary production documents:
 - o Parts list (with any existing standard parts)
 - o Technical drawings
- Calibration of the manufactured sensor at a hydraulic cylinder
- Implementation of the sensor in an existing FEM simulation in RADIOSS
 - o Evaluation of the force in the sensor over time during an impact simulation
 - o Comparison with the force over time of currently existing force sensor
- Documentation in the form of written work

If you are interested, please contact:

Timo Roth, M.Sc.

timo.roth@imkf.tu-freiberg.de